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Small and Medium Enterprise in India Today – Overcoming Policy Constraints to Achieving Rapid Growth in a Globalising Economy

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ABBREVIATIONS

ASEAN	Association of South East Asian Nations
ASI	Annual Survey of Industries
BoP	Balance of Payments
BPO	Business Process Outsourcing
BT	Biotechnology
CRO	Contract Research Organisation
CRR	Cash Reserve Ratio
D&D	Design and Development
DCSSI	Development Commissioner, Small Scale Industries
DFI	Development Finance Institution
DM	Design Module
DME	Directory Manufacturing Enterprise
EDS	Electronic Data Systems
FDI	Foreign Direct Investment
GATT	General Agreement on Trade and Tariffs
GDS	Gross Domestic Savings
GPN	Global production network
GSFC	Gujarat State Finance Corporation
ICT	Information and Communication Technology
IDBI	Industrial Development Bank of India
IIP	Index of Industrial Production
IP	Intellectual Property
IPR	Intellectual Property Right
IT	Information technology
ITES	IT Enabled Services
M&A	Mergers and Acquisitions
MNC	Multinational Corporation
MODVAT	Modified Value Added Tax
NAS	National Accounts Statistics
NASSCOM	National Association of Software and Service Companies
NDME	Non-Directory Manufacturing Enterprise
NPA	Non Performing Asset
NSSO	National Sample Survey Organisation
OAME	Own Account Manufacturing Enterprise
PCB	Printed Circuit Board
PLR	Prime Lending Rate
PPP	Purchasing Power Parity
R&D	Research & Development
RBI	Reserve Bank of India
REER	Real Effective Exchange Rate
RIICO	Rajasthan Industrial and Investment Corporation
SFC	State Finance Corporation
SIDBI	Small Industries Development Bank of India
SLR	Statutory Liquidity Ratio
SME	Small and Medium Enterprise
SOC	System on Chip
SSE	Small Scale Enterprise
SSI	Small Scale Industry
TCS	Tata Consultancy Services

TDB	Technology Development Board
TRIPS	Trade Related Aspects of Intellectual Property Rights
VAT	Value Added Tax
VC	Venture Capital
WTO	World Trade Organisation

Small and Medium Enterprise in India Today – Overcoming Policy Constraints to Achieving Rapid Growth in a Globalising Economy[1]

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ABSTRACT

Sustained very high rate of growth (above 8% in the context today in India) would be able to achieve (since a labour productivity growth of 4 to 4.5 % is to be factored in) a labour absorption rate of 3.5 to 4% which is about a percent above the growth in the rate of the workforce. But slower growth of around 6% which is what India seems to be achieving in the 90s on an average would keep disguised unemployment alive for long. Similarly, the transformation of firms and especially SMEs which have little autonomous capacity is itself a function of growth oriented policies. In the nineties labour has been sufficiently flexible to allow rapid growth whenever demand was high. In any case the unorganised workers, did not have the ability to resist hire and fire. Demand has been lower than possible otherwise since the rupee especially in comparison to the East Asian currencies has not been aggressively priced. Lacking a very rapid growth in the market sufficient to overcome disguised unemployment, the transformation of these industries has itself been affected. Similarly the continuation of tariff inversion, high and uncompensated energy taxes hurt manufacturing and especially the small and medium sector whose dependence on relative factor cost is higher. The slow movement towards de-reservation has further attenuated the process. The dynamic inefficiencies and distortions are far more significant than the static efficiency penalty that the economy pays in the continuation of reservation. Without these corrections the move to have "free-trade" agreements with the ASEAN countries would hurt manufacturing in India and especially the SMEs.

Many of the traditional small firms are in clusters, and a cluster oriented approach would be important for their success. A strategy based on leveraging trade names /brand names, many of which could be argued to be "geographic indicators", with much equity world wide, would require immediate changes in our intellectual property rights regime. Costs of excise registration and dealing with excise authorities are too large, and there is a 'fixed' component to this cost which cannot be spread over a large value of turnover. Only significantly lower excise rates for small firms could compensate them sufficiently.

The criteria of "with and without the use of power" in the Factories Act, be entirely dispensed with. All units with more than 50 employees including the entrepreneur and family labour, be brought /retained under (all) the provisions of the Factories Act. And all other units be entirely exempt from its provisions. Credit is the single most important constraint for small firms. Incentivisation of priority sector targets is the solution. The policy of directed lending to small firms (the targets for priority sector lending) ought to shift from targets or quotas to

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incentives to banks for lending to small firms. Responsible risk taking in lending would have to re-emerge. Tax based incentives for banks and financial intermediaries are possible. Statutory Reserves based incentives for banks too are possible. Concessions on interest rates are dysfunctional, though the margin above PLR rates ought to be subject to a ceiling. State Finance Corporations which could play a crucial role in financing of SMEs would have to go through quick restructuring and refocus on promotion of new enterprises typically where vast positive external effects are anticipated, such as in technology based small firms, promising industries, nodal industries, industrial estate corporations, in exchanging specific infrastructural support to existing clusters of small firms, etc.

Investments in infrastructure especially general roads, power, railways, and water supply would help to improve the performance of small firms significantly. For all small firms power and water continue to remain constraints shamefully after nearly 10 years of reform. These can easily come down at least for export industries if the taxes and cross subsidies on them are made vattable. Despite the Electricity Act 2003, it is shameful that open-access has not been extended to SMEs.

Technology based and skill labour using industries such as IT, BT, pharmaceuticals and auto oriented industries, also need to be exploited. In automobiles taxes are still very large and the inverted tariffs / high cost of materials and energy that are uncompensated hurt the prospects of India emerging as a base for manufactures. In IT, Biotechnology, pharmaceutical industries and other related offshoring activities the challenges lie in bringing about better IPR regimes that reduces the risk faced by foreign firms in their operations in India. IPR regimes requiring much insight would have to be worked work out that is able to balance the interest of Indian firms and yet lead to much industrial relocation. The addition of a petty patent register could considerably enhance the extraction of value from the many innovations that take place in the SME sector.

Municipal infrastructure is inadequate and its correction in at least a few cities is of crucial importance to the growth of the off-shoring activities and growth in these industries. Financial institutions could usefully develop strong venture capital arms to finance innovative small firms that have a good potential to emerge in the near future in many industries. Problems with government procurement which are 'designed to fail' keeps alive a very large market for shoddy goods among SMEs. Merging of the umpteen laws and regulations into one wherever feasible can reduce the currently large costs of SMEs in dealing with government.

Key Words : Small-Firms; Industry-structure; India; SME; International-Trade; Globalisation; Country-studies; Economic-development

INTRODUCTION

We develop an understanding of the role that small firms play in the Indian economy as it transforms itself. We also identify the current constraints in the approach and content of policy highlighting the areas that need action. A better understanding of the process of evolution of the modern small scale sector in the late industrialising economies can help India make appropriate policy choices. We also suggest that in the age of liberalisation and globalisation, any attempt at creation of a competitive small scale sector in the country would need to explicitly take note of the emerging global production and knowledge networks. Small industry policies, in contrast to the practice and thinking thus far, ought to be viewed as an aspect of overall industrial development policies.

The paper is in three parts. In Section I we address the issues of industrial structure, the relationship between small and large, the key role of small firms in tradable goods production and in exports in late industrialising economies. This is done through building on the insights of Dennis Anderson and by comparing the Indian situation with the experiences of Japan and East Asia. We also bring out the trends and patterns in the development and evolution of small firms in India. The discussion highlights key dimensions of policy focusing on those aspects that have not received adequate attention in the discussions so far. The key argument is that macro economic, trade and exchange rate policies do not favour the rapid growth and transformation of small firms, even as they do not favour manufacturing in India, in a situation where Indian manufacturing has to compete with many countries but most notably the dynamic East Asian.

Apart from the need to correct the distortions in the macro-economic policies, the comparison with the East Asian economies highlights the importance of the linkages between the small and large firms for generating a dynamic small scale sector. These linkages in the current context can emerge in clusters with significant scope for domestic and international inter-firm alliances. These can also emerge in specific sectors where Indian small and medium firms have built significant capabilities over the years. Given these possibilities, in Section II we bring out the situation and potential with regard to knowledge clusters in which small and medium firms can play a seminal and advancing role. The success of the Indian effort in gaining out of the increased tradability of knowledge industries would depend crucially on the success of such clusters as in IT, pharmaceuticals and auto components. The issues relating to the enhanced role of small firms in clusters and in these sectors are highlighted here.

In addition, since conventional subcontracting can still play an important role in creating dynamic small firms, the factors that facilitate subcontracting relationships are also discussed here. This helps identify areas for policy and strategic action. In Section III we draw attention to the key policy issues, and suggest changes that can lead to a fast growing economy in which small firms play their natural and seminal roles.

SECTION I
GROWTH AND TRANSFORMATION OF SMALL FIRMS IN A LIBERALISING ECONOMY

INTRODUCTION

In developing this section we have used the conceptualisation of Dennis Anderson (1982) of the phase wise unfoldment of industrial structure of the economy, the understanding of late industrialisation as developed by Alexander Gerschenkron (1954), and the idea that the labour market in India is fractured. For a more detailed discussion see Morris, S. (2001a).

Small firms in India have a crucial and seminal role to play which arises out of both the late industrialisation context and the particular historical experience of industrialisation thus far. In this the key role of organised labour in the economy and the polity is important, to understand the nature of the industrial structure, and its evolution.

THE CONTEXT OF LATE INDUSTRIALISATION

The late industrialisation context is somewhat more general than the latter factor or context. It is most fruitfully observed in the East Asian economies which are well on their way to industrial transformation[4]. In late industrialisation we expect the first of the modern industries to begin as enclaves with a great degree of import dependence and/or vertical integration. This is because the scale and scope economies are already too large to start small and then scale up. And so that the beginnings of new industries have to be necessarily at large scales and take advantage of composition economies too. (Gerschenkron, 1954; Rosenstein Rodan, 1943; Nurkse, Ragnar, 1954) This results in a greater role of the state or more generally of conscious coordination. Therefore, instruments and measures like - planning, public enterprises, large corporations that internalise great diversity of activities like the chaebol - have their functionality (Amsden, Alice, 1989; Morris, 2001a; Ozawa, T. (1985a).

Modern Small Firms Happen Later

As the first industries take root even if at much cost (in any static economic reckoning), they soon enough reach sufficient depth and size to spawn out various activities earlier integral to the firm or imported into the local economy. These result in modern small firms. At the same time the rising opportunities for growth once such enclaved industries begin to serve the domestic markets (almost inevitably due to the pursuit of import substitution policies), the input-output linkages and other linkage economies more generally allow for the local achievement of many manufacturing activities. While those that have immediate markets and do not involve much gestation happen in the private sector, those that are large and involving much uncertainty, and the unlocking of compositional economies and large gestation, or large positive externalities and with little appropriabilty, require either direct state involvement or much handholding by the state or the initiative of large highly integrating private corporations working in close coordination with the state. The latter have been crucial in Japan, Korea and Taiwan (Lee, Eddy, 1981; Datta-Chaudhuri, 1981). And increasingly chaebol like structures are sought to be created by the advancing countries of East Asia –Thailand, Hong Kong and China (where the ex-public sector trading and large industrial corporations now play this role).

[4] These unambiguously are South Korea, Taiwan, Hong Kong, Thailand, Malaysia, China and now possibly Vietnam.

Labour Absorption Needs High Growth

The very success of these large firms in the economy including in the manufacture of consumer goods such as textiles, means of transport, building materials, and other materials like steel and plastics means that there is large displacement of traditional craft industries that would earlier in part have catered to these very segments. With very low capital output ratios and high labour/output ratios there is decline in employment in the traditional - typically small units. Net labour absorption can in this period decline unless the growth rate of output is very large and unduly large capital intensity is not chosen in the modern enclaved segment. The higher rates of capital intensity that the modern industries engender imply that the savings rate has to go up very rapidly (Morris, S.2001a).

Savings and Wage Goods

Raising the savings rate has not been the problem in most countries other than those with the most parasitic regimes . And in East Asia savings have responded to investments often being in excess of investment – China, Japan, and since the late eighties Taiwan and South Korea. Maintaining the rate of investment at a high level and ensuring that the agricultural sector (which at this stage of development would be the principal wage good) expands rapidly to relax the wage goods constraint has been more difficult because workers now have higher incomes, and prior `surpluses' of food could vanish as hunger is overcome. Even more importantly, unless agriculture expands the home market constraint would bind the output of the modern industrial sector. Thus all successful industrialisations especially the late industrialisations have been preceded or accompanied by higher agricultural growth and in the East Asian context (situation of high population density) this has necessarily meant land reform. The expansion of enclaved industries have been considerably accelerated by the presence of large firms, and especially the Zaibatsus/Chaebols etc. that are able to internalise to realise the coordination economies, across a wide variety of activities and product markets. (Batta-Chaudhuri, 1981).With success the need to internalise within the large corporation declines rapidly, and with modern small firms making their appearance, the market as such grows, and the initial market failure in many industries is overcome if the growth is at a high enough rate to engender the transformation (Datta-Chaudhuri, 1981; Lee, Eddy (1981) Morris, S .1990).

High Growth of Successful Late Industrialisers

Typically the later the country has started the industrialisation process the faster has it grown making one suspect that slow growers today may have not really got their act together on crucial economic and political dimensions. This is the first stage of late industrialisation, in the East Asian context the pursuit of export-led-growth strategies meant that they had engines or exogenous forces – the home market demand arising out of – agricultural growth and the demand for manufactures from other countries – principally the advanced industrial economies (Morris, 1997).

In the second stage the small firms grow rapidly since continued import substitution, and the pursuit of export led growth policies (especially the latter) create vast opportunities for medium and small businesses. This is because scale economies plateau off beyond a certain point in the case of many `light' and consumer industries point. Here the economies of owner supervision, the higher transactions cost within the large firm and in chaebol like structures and the falling costs in specialised firms, the tendency of markets to improve in transaction efficiency with the volume of business promote the movement out of activities hitherto

carried out in large firms into independent firms (modern small firms). As the depth of industrialisation increases many more segments and activity sets for such development emerge. (Hoselitz, B., 1960; Nagaraj, R. 1986) As the economy learns to develop networks (often mediated and managed by large firms and trading enterprises) the costs of internalisation within hierarchies are relatively large for these fairly standard manufacturing activities in relation to the falling costs given market and network development, so that (modern) small firms grow very rapidly in this second phase.

Traditional Units Decline

In this phase the role of the traditional small firms continues to decline precipitously especially as the per head incomes grows. This is because many of these do not have an ascendant path of productivity improvement. Being based on craft with little division of labour, they are absolutely inefficient (if the labour they use were to be valued at the cost of labour to the small modern firm) (Sen, A.K. 1960). Continued existence of these firms without their transformation through an ascendant production process, or in non-niche markets (especially niches which can look forward to rising relative term of trade –products of culture, handicrafts etc) is reflective of the slowness of the transformation and perhaps even of its non-success. Indeed, if this segment exists in products of mass consumption, it is the clearest sign that the country has not been able to completely overcome the problem of disguised unemployment. It is obvious, therefore, that the industrial structure of the late industrialisers evolves in a pattern quite different from that of the early industrialisers. Here average firm sizes fall as the modern small firm expands (if one keeps the traditional firms out of the analysis) while in the classical case the average firm size rapidly increases as the artisanal firms undergo differentiation and transformation, with most being absorbed /dying out while others emerge as the successful firms. While the H-index can be expected to fall in the case of the late industrialisers from very high nearly monopoly levels (1) they rise from very small values to moderately high values in the classical case.

Overcoming Disguised Unemployment the Turning Point

Indeed a posteriori it is also worth recognising that the process of technological change in these firms changes in technology and increase labour productivity cannot happen unless the 'labour shortage' that marks the point at which disguised labour is overcome is reached. It is also important that for some reason if large 'enclaved' firms chose (or are forced to choose) capital intensive technique as compared to what they would have used at a little above the quit rate for labour from the agricultural sector (a la Arthur Lewis), then the labour absorption by the large enclaved segment is for all practical purposed very little. It then falls on the small firms to absorb labour, assuming of course that they have access to labour at rates close to the "quit rates" from the agricultural and the traditional small firm sectors.

The principal reason for such `schism' in the labour market is the prior long history of labour movements, in enclaved industries, which did not have the basis for expanded growth – most often due to the yoke of colonialism. In this phase the medium and small modern firms expand most rapidly.

In the third phase which is the victory phase of late industrialisation small firms are either completely modern and/or are in typically thick inter-firm - linkages among themselves and with large firms; or when non-modern (i.e. using craft technologies) would have had large terms of trade shift in their favour. Morris, S. (2001a).

Schism in the Labour Market

In the Indian context the history of labour movements and the policies that the same engendered explain the existence of a deep 'schism' in the labour market. Early development of enclaved industrial centres of considerable size in Calcutta Mumbai and Madras, wherein workers could bargain hard meant that labour laws and the overall edifice of labour policies were far ahead of their time. Since the sin qua non of this enclaved labour in being able to maintain its price higher than that of labour (unorganised) in the market, was political action and struggle, the labour laws in the country had already evolved to favour and maintain a schism between the two markets. [The provisions of the Factories Act, and other labour acts are few of the legal and institutional basis of this differentiation.] What make for economic feasibility of the labour schism are the rents and the higher rates at which surpluses can be made in the large firms.

Dual Structure of Industries

The higher surpluses arise from their market power and/or higher capital intensity and in many ways policy induced protection. These allow such firms to pay higher wages to their labour, while being able to survive in the market. Indeed the survival of these firms under such pressures of high wages from imports and from a competitive small but modern sector would demand that they go up the scale of capital intensity. Additionally when the state is additionally willing to protect such firms from external competition, the organised labour market though always a fraction of the competitive market, can still be considerable in size. Any convergence of the two markets necessarily means the faster growth of the small firm sector. Right wingers believe that more liberal labour laws can and should be put in place. While desirable we would argue that politically it is unrealistic especially in India where pro-organised labour policies and laws have been in place for long. More importantly such liberal labour laws that allow hire and fire in all segments of industry are not necessary either. Increasing labour flexibility even in the organised sector has come, due to the change in labour movements from militancy and political concerns to economism. See Fig. 12 which brings out the man-days lost in strikes and lockouts, and the workers involved in disputes both of which slow declining trends. As a result while the growth of labour in the organised private sector has been small there have been large productivity gains. With labour flexibility in this limited sense and with subcontracting to small firms there is sufficient labour flexibility at the systemic level. Thus the role of conservative macro economic and exchange rate policies in constraining expansion of the small firm and more generally the manufacturing sector is the more significant one, which needs to be reversed.

India and East Asia

The contrast of the Indian with the East Asian economies is worth examining. Japan had some schism in the labour market though this was nowhere as high as in the case of India. In Taiwan the `schism' was much less. In Thailand at about the same level as in Japan, and in Korea and China far less. As such the role and significance of the small firms is considerably less in Korea and China than in Taiwan, Thailand and Japan. And in India it would have to be much larger and more interlinked with large firms, if the economy is to make anywhere near the progress that Taiwan or Korea have made.

Export Led Industrial Growth

This is not the place to discuss the success of the East Asian strategy but it merits recall that (1) overcoming the home market constraint through land reform and high agricultural growth

(Alam Shahid, 1977); (2) the pursuit of export led growth (simultaneous pursuit of export promotion and import substitution (Morris, S.,1997) and (3) macroeconomic policies conducive to the pursuit of high growth (Morris, S, 1997; Kim, Linsu 1983; Datta-Chaudhuri, 1981) (financial repression, directed credit, incomes policies to control inflation, highly (structurally) undervalued exchange rates, functional controls, besides state investment in areas of market failure –education and infrastructure) were importantly the necessary and core conditions for high speed transformation.

Slow Growth and Idle Labour

In India the slower growth rate has meant that the small firm sector continues to have a large traditional sector And the slow labour absorption has in turn stood in the way of technological growth of the small especially the modern small firm sector, even as the large enclaved sector has increased the gap between its capital intensity and that of the small modern sector. It has also resulted in a slower growth of inter firm linkages which are most crucial to the engagement of the (disguised) unemployed labour from agriculture and the traditional small firms. The poorly developed linkages also stand in the way of cost reduction and hence of greater market access in an open economy that the Indian economy is today. It is important to understand this two way linkage.

The Dual Handicap

Today small firms in themselves (with only the assistance of trading houses and aggregators at best) cannot access the global markets (or for that matter even the national markets), since the challenges of packaging, standardisation, approval and certification, scale economies in transportation and trade, licensing, advertising, retailing and marketing more generally, technology scouting, keeping to changing trends and new designs, which are all the competitive factors and have large indivisibilities or scale and scope economies are all loaded against the small firm. But the one advantage they have is their access to the competitive labour market.

On the other hand large firms could potentially invest in developing the competitive factors, but they lack the advantage of access to the low cost labour market. The cost difference is quite large being as much as eight times higher for the large firm (Joshi and Joshi, 1976). Thus large firms have the handicap of being denied the factor cost advantage of the country. This dual handicap is most visibly exposed when the trade barriers are reduced, and industry as a whole is unable to bear the severity of import competition and exports too remain small especially in the comparative advantage products (Morris, S., 1998).

Neutralising the Dual Handicap

The only hope for such an economy to be able to retain its manufacturing competitiveness is to develop deep inter firm linkages especially between the large and the small that allows the strengths of both to be brought on to the competitive challenge while their handicaps are negated. But this cannot happen merely by the urgings of the government or academics. Nor can it in any direct actionable sense be a policy priority. The decision to make/buy, vendor development on the part of the large firms, and the decision to be a production appendage of a large unit in the case of the small firm in question are all internal to the firms. Firms must see merit in such relationships and view the investments that they need to make to develop and nurture such arrangements as being worthwhile. It is interesting that in sectors where growth has been high or in regions where the growth has been high the degree to which such

relationships including subcontracting have developed has been significantly higher than in slowly growing sectors or regions.

Thus this positive structural (and organisational) change being itself a function of the growth achieved by the manufacturing sector means that in a policy sense the key to both higher growth of the sector, to the transformation of the sector and to the adoption of vendor development and more generally inter firm linkages lie in macro economic policies that have a high impact on growth. These are of course monetary and fiscal policies, exchange rate policies, besides the supportive infrastructure, and in the longer term polices that relax other frictional constraints on small firms and on industries more generally. What is true about the development of inter firms linkages is also true with regard to the transformation of some of the traditional small firms into modern firms, as also the transformation of some small firms into large firms, and most importantly of the adoption of productivity enhancing technology and investments in firms. There would of course be a secondary role for policies that directly bear on inter-firm linkages, such as removing current constraints to equity participation by large firms in small firms; FDI restrictions on trading and actions and policies that ease the prospects of collective action by small firms especially in clusters.

Small Firms' Role in Tradables

Small firms' comparative advantage lie in manufacturing especially those that involve a greater share of value added from labour –especially semiskilled and skilled labour - and in the Indian context even unskilled labour (as long as disguised unemployment is not completely overcome). Manufacturing is also the most tradable of all sectors especially when the goods are standardised, competitive and have long shelf lives. Successful industrialisers (especially late industrialisers from densely populated economies) show the crucial role of labour intensive manufacturing in the transformation of the economy, especially in exports in the early phase of their transformation (Kojima, K. 1985; Ozawa, T. 1985). The reason for the same is easy to see since the social price of labour is technically zero when this factor is in surplus, so that its engagement via labour intensive manufacturing exports is the first and most important opportunity. Since small firms have a comparative advantage in labour intensive manufacturing, and in an acute manner given the schism in the labour market in India, it goes without saying that no great exports are possible without the small firms' dominant and productive role in the same. This also gives criticality to the key complimentary role of larger firms – that enter into subcontracting arrangements, aggregate, and trade in small firm products. Indeed in a micro action sense promotion of such trading houses and integrators as also freeing small firms to perform this most vital role, may be crucial. (Morris, S. 1998)

Such complementarity is observed in the case of East Asia especially Japan. In India small firms dominate in manufactured exports. [The point though is that relative to the size of the economy or to its potential the total volume of exports remains small and much of the manufactured exports are of the absolute advantage variety]. In China though, given little schism in the labour market, industry size have only a weak effect if at all on the price paid for labour, so that exploiting labour, and the development of complimentary (competitive) factors is possible within large firms.

CRITIQUE OF EXISTING POLICY

Unrecognised Macroeconomic Determinants

Small industry policies have typically meant narrow sector oriented policies such as reservation, duty concessions, directed credit, government regulation, controls and extension. The major impact of macroeconomic both monetary and fiscal policies on the sector have been almost entirely missed in both the government's own discussion of policies and in the debate among academics[5]. Macro economic policy distortions are large and continue to be the most important determinant of the growth and change within the sector. Similarly infrastructural policies and development which has a special impact on the sector since most firms would not be able to develop their own infrastructure have not got the systematic attention they should have (Morris, S, 2001b).

The 'Protection' Syndrome

The un-stated but most evident assumption in the policy has been that 'small firms essentially need to be protected". This is a continuing unexamined vestige of he the past (perhaps functional then) approach, which sought to develop small firms as an integral part of the Mahalanobis strategy. Then it was believed (quite wrongly as the subsequent developments and the historical experience of Japan and elsewhere in the late industrialisation context would reveal) that the traditional typically handicraft based industries (peasant enterprises) producing a wide variety of consumer products could gradually and through continuous investments and up gradation of technology make the transition to modern medium and small firms. This belief could at best be right for a minuscule part of the then existing largely household small firms. Thus tinsmiths typically do not, in the late industrialisation context, become aluminium or steel utensil manufacturers and potters makers plastic articles like buckets. Protection from large was integral to this strategy and small firms were to be given a larger role in the economy by an inter alia ban on capacity addition in industries like textiles in the mill sector. Unfortunately, this policy remained until 1984, to the great detriment of the Indian economy and to the stunted and dysfunctional growth of small firms. This measure and the overvaluation of the currency that resulted from the pursuit of vanilla import substitution negated the potential that the industry had to ride the post war penetration of manufactured goods markets of the advanced capitalist countries (Morris, S., 2001).

Losing the Manufactured Export Boom

India among all developing countries had the best endowments and initial conditions to take advantage of falling tariffs over the various GATT rounds not only in textiles, but in a whole host of light engineering, electrical, ceramic and other manufacturing industries that existed in the medium and large industries. With the massive biases against exports the only option for manufacturing industries was to get into import substitution. And while the large sector was expected to focus on high tech and long gestation capital and basic material industries, the manufacturing and light industries were to be very much in the small. While the curbs on the C-Large sector restricted their growth sharply, the expected flowering of the small firms to produce consumer goods cheaply did not materialise. During this period up to about the mid-seventies the economy was woefully short of wage goods not just because of inadequate agricultural surpluses but because the expected larger rise in consumer goods of the right quality and types from the household industries could not materialise.

[5] It is disheartening that our study, [Morris, S, et at (2001)] which called to attention this aspect, has not been taken up in the discussions in circles close to the government.

Orthogonal Policy

Essentially the policy was orthogonal to the direction of evolution of industrial structure. It is only since the mid-sixties that the modern small firm sector could emerge due to the expansion of the economy (slow up to 1969), and due to the de-facto fragmentation of large firms (given the capacity curbs and the deepening schism in the labour market) . Since the plan developments (1956-65) could not ensure the absorption of labour, and neither could agriculture, given the slow growth there, small household firms despite their decline continued to play their role of being receptacles disguised unemployment. The modern small firms which could have absorbed labour cast out by displacement due to the expansion of large were not on the scene as yet. In the eighties the modern small scale industries came into their own including through subcontracting and vendor relations (Nagaraj, R., 1986), and through the exploitation of the schism in the labour market. But the policy continues to assume that small firms need protection. In the process the major distortions against the small firm sector (especially the more modern and dynamic component) continued and had deepened. Even the nineties have only led to a partial correction of some of these distortions while others have increased in their intensity.

Political and Social Agenda in Small Industry Policy

In the period of redistribution (1965 to 1980) and continuing until well into eighties small and medium firms began to be promoted for another additional reason viz. to "diversify the social basis of capitalism." While the positive impact was that many technology based small firms came about, and import substitution was taken deeper, the negative aspect was that small firm policy continued to be focussed on the entrepreneur and the surpluses he could make rather than economic benefits to the country. Thus many sectors where the small firms did hot have any particular advantage were promoted, reservation was deepened and an inefficient production was kept alive. Examples would be chemicals, many textile items, biscuits and confectionery, stationary items etc. Besides reservation, government purchase, credit and equity support, and increasing differentials in the taxes paid by small firms vis-à-vis the large were important measures to `support' small firms. (Desai and Taneja, 1993; Morris, 2001)

The Regional Development Agenda

Regional development ever since the Mahanlaobis Plan was seen as arising out of the development of small firms. Small firms were seen as amenable to being located practically anywhere –as long the basic physical infrastructure could be provided –water electricity roads etc. Thus simplistic statements such as "steel plus electricity, with a policy of their dispersal equals regional development" were articulated. The resulting actions were quite disastrous. Most of the industrial estates that did not have access to reasonably sized central places were failures. Others that survived imposed large hardships on the firms, since firms had to bear the high cost of inappropriate location, and the denial of the natural agglomeration economies that small firms necessarily demand. Still others like chemical firms in being spread out in the name of regional development and backward area development ended up maximising the externalities of pollution, and making control over pollution beyond the capacity of small firms[6]. Also states in order to attract industries began to declare areas as backward; some did

[6] Much later in the nineties when the Supreme Court under pressure from citizens was deeply concerned about the systematic violation of pollution control laws, state governments intervened by attempting to set up common effluent treatment plants. But these proved ineffective since their wide

this more wisely than others by declaring a taluka adjoining a large city as backward, even if the spirit or the purpose of backward area development was vitiated.

The reality is that small firms can hardly ever be the basis of efficient regional industrialisation since the agglomeration economies are large. Small firms of the special kind –agro processing, repair of implements, processing and aggregating bulk materials found in scattered lots, or industries that produce perishables (bread for instance)- which tend to be regionally dispersed, should not detract from this essential aspect of small firms, etc. The agglomeration economies arise from input output relations, common pool of factors, ready availability of a variety of services in clusters, the ability to share and monitor each others behaviour and performance, monitor the development of new products and technologies, ease of diffusion of ideas, coordination economies, ease of associating together to sort out problems of common concern, lower cost of infrastructure since there are critical minimum levels of infrastructure production below which they become prohibitively expensive, sharing of communication including transportation links which in fact develop as the cluster reaches critical sizes, and many other factors that are too numerous to be listed or envisaged ex-ante. Indeed so large are these that many small and medium firms which had been pushed into inappropriate locations through fiscal and other concessions and through administrative measures, and in which locations they did not have the time to overcome the locational infirmities, have when these fiscal measures were retracted, become unviable and have had to shut shop.

Indeed the agglomeration economies and the economies of a variety of inter firm linkages are so large that the survival of small firms over the phase III of Dennis Anderson (1982) in a major way is contingent upon their realisation of these economies in clustered locations.

MACROECONOMIC POLICY DISTORTIONS TODAY

We may list out the macroeconomic policy induced distortions against the sector.

Tariff Inversion

Tariffs are not entirely free from inversion caused by higher rates on inputs like steel, plastics, energy, and metals semi manufacturer than on finished products. Cases of inversions declined over the late nineties but many still remain, and particularly hurt small firms since they have a comparative advantage in manufacturing in the original sense of the term. Additionally, the very high uncompensated costs of energy especially electricity and petroleum based energy, which are not vatted even for export industries impose large costs on location of manufacturing in India (Morris, S, 2002c).

Conservative Monetary Policies

Monetary policies have been unduly conservative and amount to targeting money supply. As a result any substantial growth impetus in the second half of the nineties that may have come, have tended to be arrested by this monetary conservatism, since the monetary targets are being adhered to rather rigidly. Once the danger of inflation was over (from 1996 onwards the inflation is almost entirely on the supply-side and caused by rising agricultural and fuel prices) the policy should have shifted to interest rate targeting and supporting fiscal expenditures especially when the fiscal expansion has been on account of (efficiently

dispersal and the common property aspects in their management could not be overcome.. Only closure has really "worked."

directed) infrastructural spending. In unnecessarily curtailing demand, , the manufacturing sector has realised poor growth relative to its potential and this hurts the small firm sector

Exchange Rates Not Aggressive Enough

We have already argued before small firms' comparative advantage to lie in exports and tradables goods production more generally. Exchange rate policies have been particularly hurtful of small firms especially in areas like textiles which are dominated by small and medium firms. The real effective exchange rate of the rupee has been higher than the value that it has been since the close of the stabilisation. If it can move to those values the small firms' export can rise as can also manufactured goods production that is based in India. It is worth remembering that the export led growth economies greatly undervalued their currencies (subject them to a structural undervaluation) for long periods to get the export engine running before it could take off on its own steam based on virtuous productivity spiral to become less dependent upon exchange rates. Fig. 1 brings out the relative undervaluation of the currency (from its 'purchasing power values') that is policy induced –i.e. when the structural and other determinants of exchange rates have been duly allowed for. It shows that China has since 1979 followed the East Asian economies into export led growth with strategic undervaluation of the currency while India may be said to have made the beginnings of the correction to a more 'equilibrium' value of the currency (Morris, S., 1997).

Private Inflows and the Exchange Rate

It would be a red herring to argue that since the rupee is market determined there is nothing that the RBI can do. Firstly this is not true when the entire gamut of fiscal and monetary polices are considered together including incomes policies. Secondly, even if we admit that the role of exchange policy is to ensure a near balance on the current account except to a small (perhaps 1% of GDP) that allows foreign capital to flow to that extent into the economy (this itself is not admitted, and capital flows are being allowed to have an influence on the exchange rate to an extent that is not warranted), then the exchange rate would have to different from what is presently. Further recognising that there are large flows of the order of 20 billon US$ on account of remittances which are on factor earnings, even an exchange rate that closes the current account would necessarily mean that the trade and non-factor services deficit would have to be as high as this inflow. Such a pricing would be conventionally considered alright. But it would not be fair to the export industry in India, and therefore for manufacturing and productive enterprises producing tradable goods. It would also not be in the long term interest of the country. This is another version of the 'Dutch disease' being allowed to operate. Recognising and correcting for the same would mean that the macro polices followed would necessarily lead to both current and capital account surpluses! [7]

[7] This means that inevitably India would have to accumulate dollars faster than at present. Stepped up expenditures that allow the investment rate to rise would be feasible without a savings constraint. This is amply clear since the marginal savings rate is higher than the average, so that the scope for additional investment (provided they are efficient) to be financed and to create its own savings exists. This apparent 'anomaly' is easily understood if we recognise that economies such as the Indian or the Chinese have vast unutilised capacities in the form of manpower available (currently engaged in low productivity industries or suffering form disguised unemployment) which can at very low cost be engaged in export industries provided the demand exists. Exports therefore essentially amount to demand creation that at once also relaxes the foreign exchange constraint.

"Tight' Credit Situation

The large capital flows both on account of portfolio flows and direct investment have the undesirable effect of imposing tight credit conditions on domestic firms when these capital inflows are sough to be sterilised, to hold on to monetary targets. Such tightening of credit conditions operate asymmetrically as between firms that have access to foreign capital inflows and foreign direct investments firms on the one hand and domestic firms that do not have such access. It is particularly adverse for small firms, since they more than other firms are dependent upon intermediated banks sources of finance. While some part of this effect is inevitable in a situation of bunched capital inflows that is over responsive to Indian growth prospects, a larger part of the same is induced by the inappropriate macro policy of monetary targeting. Additionally, the interest rate being higher than necessary the risks in foreign capital inflows are small leading to excessive flows. Indeed the tendency of the RBI to use (higher) interest rates to stem possible balance of payments (BoP) problems and generally to keep these higher than what is warranted by the closure of the "Fischer-open" condition is at the root of the problem.[8]

Furthermore structural distortions with regard to the regulation of banks and to the incentive structures within banks have also been responsible for further accentuating the credit difficulties for small firms. Under tight credit conditions there is a triple squeeze on small firms. This is because the restrictions are imposed asymmetrically more on these firms, and they are also subject to credit squeeze through delayed payments and extension of credit lines in purchases.

Similarly the share of financial savings taking the banking route has been steadily declining. The allowed high spread to banks, and the control over deposit rates as also the numerous incentives for so called "small savings", tax deductions allowed on other bonds and funds (infrastructure funds, UTIs schemes, etc) reduce greatly the incentive to save in the form of fixed bank deposits, making for lesser intermediation than what would have been possible otherwise. Since small and medium firms have a comparative advantage to access bank funds (while large firms could go on to markets) there is an implicit discrimination in these distortionary policies. The distortions have not reduced with "reform" of the financial sector, nor have the banks 'need' for large spreads come down. See Fig. 10 which brings out the declining share of financial savings flow through banks. Even in the credit flow the share of small and medium industries has come down rapidly in the wake of reform. See Fig.11.

Perverse Incentives in Banks

Banks have poor incentives for accounts development. The structure of the banking industry which restricts the competition between banks as also the internal processes within banks are responsible for this problem. These more than any other factors critically constrain the credit access of small and medium firms, especially those that are on the verge of making those investments that are productivity enhancing and allowing firms to cope with high quality standards and tighter delivery schedules etc. The NPA problem of public sector banks was sought to be overcome inter alia through large budgetary provisions that would allow them to write off loans and meet the capital adequacy norms as per the international Basle Convention norms. Such provisions were indeed made in the first few budgets that followed the stabilisation. Since 1995 the tendency has been to shore up the profits of banks by "allowing

[8] A "Fischer-open" condition in this context is said to exist when the expected rate of depreciation of the currency ex-ante (as measured by the currency premium in the forward market) is systematically larger than the actual realised depreciation.

them" a large spread between lending and deposit rates by administratively fixing deposit rates. This large and continued spread, the fact that banks earn high interest on SLR securities (risk free rate being high due to monetary policy), means that the process of disintermediation is accelerated since even as banks have little motivation to lend out of the smaller share of savings that they collect. These impose biases against small firms that are inherently dependent on credit markets, and could hardly ever go for equity and debt markets.[9]

Sickness and Erroneous Data

Many poverty alleviation and other targeted programmes take the form of self employment support especially credit programmes despite their known failures. These perform far more poorly than do food for work and employment programmes more generally. Despite that, the tendency to place a higher value on being self employed (however, poorly) and the larger scope such programmes provide for leakage, and their off budget nature, have kept them alive and thriving.[10] Banks for reasons known only to them, report the data on lending to small firms that include the loans made out under these special employment etc schemes! Most of these loans are giveaways at best, and payments to government and other staff down the line. Naturally the overall sickness and loans outstanding against small firm appears much larger than they are. In reality the non-performing loans outstanding against small firms is quite small much smaller than in lending to medium and large firms. Such erroneous data not only colour the perception of outsiders with regard to the riskiness of lending to small firms but also that of bankers themselves. Moreover there is another kind of problem that handicaps the access of the modern small firms to credit.

Underdeveloped Venture Capital Industry

The capital market imperfections reflected in the non-availability and high cost of credit are compounded by the fact that the venture capital industry in the country is quite underdeveloped[11]. As a result, emerging entrepreneurial opportunities (see discussion in the next section) for small firms are not exploited. Small scale start-up funding is virtually not available. Existing VC institutions have a banking mindset, are beset with bureaucratic norms & target orientation or focus on the growth phase of enterprises. (see Box).

Box: VENTURE CAPITAL AND SMALL SCALE SECTOR

Changes in global industrial structure and technology can create significant opportunities for new enterprise creation in the small scale sector. In this context it is important for capital market to be equipped for such growth. The general consensus is that angel funding is virtually unavailable and sources of start-up funding are drying up. This is so because many of the state financial corporations are sick (e.g. GSFC) and have stopped funding, while others (e.g., RIICO) have reduced their scale of operations considerably. Problems with state

[9] A thin section of the small firms that are in the dynamic and changing industries could in the process of their growth into large firms access venture capital, firms in areas such as software, biotech and nanotechnology industries, other service industries that look forward to large growth in the market. See Morris, S (2001, Chapter Finance) for details on the expected sources of funds for a variety of firm types.

[10] For a discussion along the lines of the expenditure process and the perversities therein in public expenditure see Morris, S. (2004).

[11] One could also argue that the market created by the emergence, growth and transformation of small firms itself being smaller than the potential, for all the reasons mentioned earlier, has itself inter alia handicapped the venture capital business. Obviously feedback effects are involved.

financial institutions have partly come about due to the "target orientation". Politicians set false targets which inculcates corruption and thoughtless investments. Given the problems with the state level institutions, the national level refinancing institutions (e.g., IDBI) have reduced their fund flows and have become "very strict." Besides, there is a tendency among institutions to convert themselves into universal banks and focus on more lucrative channels of retail banking[12]. Multilateral funding available to each state is confined to large infrastructure projects.

The government essentially provides start-up funding through two sources – TDB and SIDBI. Both have fairly centralized operations. TDB is run by non-experts and is very bureaucratic. Schemes have a variety of restrictive clauses. It is risk averse and seeks a good track record of profitability, a condition which is ridiculous for a start-up. TDB also provides only large amounts but few small firms require such funding. SIDBI has its own schemes that are not well known. The disbursement of capital is centralized (VC office is located at Mumbai) and it is expected that applications will come through local SIDBI offices. Local offices are not VCs (have a development bank orientation) and training levels are very low. SIDBI has also been slow in developing direct financing. Small and mid-sized cities are being missed by SIDBI. Their focus has been limited only to larger cities. Being a 100% government institution, SIDBI also suffers from bureaucracy and time consuming processes. Tenure of top level management is short and the executives at senior level and middle level risk averse. While SIDBI took the right initiative in Venture Capital as fund of funds, but its operations as a direct VC agency for SMEs has been focused only on its IT industry. Even here the takeoff has been very slow so far, as only 40% of the IT fund corpus has been invested in 26 companies in the last five years (c. 2004). Besides, being a public sector organization SIDBI cannot pay high salaries and attract good talent. Therefore, its VC division has been staffed with its own people from the term lending division who lack the requisite experience in VC operations.

Private VCs are not interested in start-ups. They focus on private equity for their investments. For whatever little start-up or growth funding they provide, the bar is being raised continuously. For example, they typically do not fund projects below $ 8-10 million and very few SSEs require such funding. Therefore, a large number of potential start-ups are outside their ambit.

Given all these problems, small firms that do get VC funding are over-capitalized because appropriate VC inputs are not available. For start-up support local funding is important both for proper needs assessment and for managerial support (mentoring). Therefore, it is desirable that multilateral assistance disbursed through TDB and SIDBI is decentralized. The resources can be made available to properly selected and professionally managed entities with proven track record.

Based on interaction with Vishnu Varshney, MD, Gujarat Venture Finance Limited.

RESERVATION

Perhaps the most important critique of the existing policy is the continuation of reservation. In this regard though there is widespread recognition that reservation should go, being an anathema and in complete contradiction with the tenets of a liberal economy. But the problem has been viewed as being political. In reality though, if the sector as a whole could have

[12] This tendency is furthered by the macroeconomic policy distortion, especially the cap on deposit rates that has kept alive an unduly large spread in banking operations.

looked forward to high rates of growth, de-reservation should have been easy enough and with tact easily carried through. The distortions imposed by reservation are far too many but essentially they hurt the dynamic development of competencies within the economy since they rigidly define the activity distribution between small and large firms once and for all. In not allowing for a continuous movement of the boundaries between the many types and sizes of firms, they constrain the unfoldment of dynamic comparative advantage. And industrial transformation as is well known is about realising dynamic comparative advantage. While reserved firms do show some efficiency penalty in the static economic sense (Desai and Taneja, 1993; Morris, S., 2001d), more importantly there are major behavioural differences between those that manufacture exclusively reserved items and others. These include little dynamism and growth, and greater dependence on government purchase for survival. (Morris, S. 2001d). The real problem is that they do not allow for a continual evolution and movement of the boundary between small and large and in general between markets and other modes of coordination. Thus: "*In a more general framework that includes external and dynamic effects, we may broadly categorise the costs paid by the economy (and the sector as a whole) into those arising out of:*

- *Inappropriate choice of technology; as when the products with scale economies are forced to be produced in the small.*
- *Altering the environment of small firms in such a manner as to remove or attenuate the pressures for change leading them to being locked into particular product markets with declining growth.*
- *The costs due to the interaction of reservation with the government's purchase policies, and the nature of income distribution. The interaction also creates a large market for cheap or "shoddy" goods.*
- *A thin section of small firms everywhere are able to take advantage of the freedom that exists in small organisations to innovate and create. The costs of R&D and D&D in certain specific activities tend to be very low. Such potential for in-house development and R&D remains muted in firms manufacturing reserved items.*
- *Inappropriate division of labour across firm sizes. In the case of many products, the economies of scale arise in marketing, especially advertising, and in scope i.e., the joint economies in selling or marketing many related items. As firms in the small scale sector take to the production and sale of such products under reservation, they take upon themselves marketing, an activity that is best done at large scales.*
- *Fragmentation of markets. Reservation which makes it possible for small firms to produce items of mass consumption in firms regionally distributed, cater typically to small markets. Therefore, the unfoldment of the division of labour and economies of specialization, which depend upon the extent of the market, is prevented. A set of fragmented markets equal in size to one large integrated market has altogether different implications for the adoption of technology, or labour cost reducing innovations, or for accumulation. Capital/labour ratios which in the long term can only grow, are, to the extent that reservation keeps markets small, prevented*"(Morris, S. et al 2001, p.131,135,136).

TRENDS AND PATTERNS IN THE GROWTH OF SMALL FIRMS IN INDIA

Before we examine this question it is important to have a broader understanding of the trends and patterns in the growth of industries and then examine the growth of small firms in relation to the same. See Appendix -A Review of Growth and Development Since 1955.

National Accounts and the Small Firm Sector

The period since 1997 -98 has to be sharply distinguished from the earlier part of the nineties. See Fig 2 and 3 which bring out the de-trended log[13] of GDP and of industrial output (NAS) and major sectors. The turning point as being before 1997-98 was first identified by Morris, S. (1997). While services have continued to grow fast after 1997, industrial growth rates and esp. mfg. growth rates haven't picked up until very lately. The monthly data on the Index (Fig. 4) also brings out the same picture. After 1998 the industrial growth rate (mfg.) has hovered between 5 to 10% and never gone above that level. Since 2003 one sees a moderate pick up though.

The Index of Industrial Production (IIP) with 1993-94 as base also shows the same picture of a high growth after the structural adjustment with the following rates of growth (1993-94: 5.5%, 1994-95 -8.5%, 1995-96 12% 1996-97- 9% all approx), and then to a collapse to under 6%). See fig. 5.

Macro data only on unregistered and registered manufacturing is available which shows that the recovery from the stabilisation has been rapid by both sectors but since 1996-97 the slow down is marked especially for the registered segment. The unregistered segment (non-factories) also shows slow down but still maintains the low period average growth rates. See Fig. 3.. The unregistered segment includes both modern small firm (the non-factory component) and the household sector and as such is not reflective of the modern small firms with which we are principally concerned with.

DCSSI Data

Data on the officially defined small firm sector is not clear because the definition has undergone changes and these pertain to a set of firms that that are traced by the DCSSI. Nevertheless the data shows the following:

- Eighties growth after 1982-83 has been high at rates around 10% p.a. (average). (Fig. 6)
- Post structural adjustment growth has been about 7-10% till 1978-79 after which much smaller till 2001-02 of about 6-7%. (Fig. 6)
- Exports growth performance since 1986 has been in the high 20% plus with short three year variations, given the late depreciation in the eighties. (Fig. 6).
- Even the stabilisation of 1990-91 and 1991-92 did not reduce the growth rate of exports. (Fig. 6).
- But exports collapse from 1996-97. (Fig. 6)
- When the exports and value of production over the entire period from 1973-74 to 2000-01 is de-trended and considered, then clearly the rise in exports (higher than period average growth rates since 1985-86 which is maintained till the mid-nineties and even during the stabilisation period. The value of production of the registered small firms (as recorded by

[13] We can argue a priori that GDP (output of an entire economy) of a capitalist economy has to grow exponentially since only that form is consistent with stationary positive returns. Thus the transformation that is most useful in bringing out trends and fluctuations is the de-trend of the natural logarithm of values of GDP etc, Visually they call attention to the trends over sub-periods in relation to the period average growth rates. The growth rate over a sub-period is higher when upward sloping and lower when downward sloping and being equal to the average when horizontal. They also draw attention to the turning points. Another valid operation is to take the change in the exponential (symmetric) growth rates, which we may characterize as the "shocks" or the "innovations". More formal analyses which test hypothesis can only follow such analysis. In other words the tendency in empirical work to allow the data to determine the functional form is in a sense erroneous.

the DCSSI) has slowed down ever since the 1990s and the high growth of the period immediately following the stabilisation, may have been a small interruption. Thus if the data is to be trusted the period of the nineties has been one of major slow down in the growth of small firms. The relatively poor performance of industries and manufacturing during this period is not independent of the slow down in the small firm sector. Fig. 7.

- Employment growths in the SSI sector, for whatever it is worth, shows a fall from the 5.5 to 6 % p.a. of the eighties to about 4 to 5% after the stabilisation and then to a further fall after 1997-98. (Fig. 8).
- No of SSI registered units which had been steadily falling over the eighties continued to do so (falling from about 9% per annum to about 5% p.a. by 2001-02, with a sharp fall in 1996-97 the year the exports collapsed. During the high export growth years after the stabilisation the growth rate was held at levels between 6-7% p.a. (Fig. 9).

The Non Factory Sector

The NSS has been brining out the quinquinium surveys of the non-factories – the so called unorganised sector of manufacturing. Despite the many details[14] here, it is cumbersome to put together the information with a view to working out even the estimates of growth in such important indicators as employment and value added. Nevertheless we put together the same to construct table 2. The growth rates for gross value added are computed by first deflating the value added with the implicit deflator for mfg GDP and then computing the exponential growth rates per annum. These show a rise of about 2.9 to 5% across the segments, for the period as a whole. The average increase for the period as whole is 3.49% p.a. The employment growth rate on the whole was 1.2 %. Besides the intrinsic problems of comparability the two years in question may also have been special. Thus 1989-90 was a period of good growth, and 2000-01 was very much a recessionary year so that for the period as a whole the growth rates are underestimated.. Nevertheless hesitatingly we would measure the employment elasticity to be 34% . This is somewhat smaller than that of the measurement of the 'middle sector' i.e. the ASI small factories plus the non factory non-household units using the Census, of about 60% in the seventies. Clearly the output growth of this group has been quite small. Since it contains both the modern small firms and the household/traditional units which are expected to expand only very slowly, no firm conclusion can be drawn on the slowness of the growth of the modern small firm sector in the nineties on the basis of the aggregate information. Nevertheless since the DME sector in which there is little chance of the 'household' /traditional kind of units being included, the growth rate in real value added has been about 3.5% in urban areas and 5% in the rural areas. This would mean that the lower end (non factory) small firms have indeed grown slowly in the nineties.

[14] There is a lot in these surveys that is of concern to the sociologist, but few of the interesting questions that an economist would like to ask are covered in these surveys!

SECTION II
KNOWLEDGE CLUSTERS AND SMALL FIRMS

INTRODUCTION

In the age of liberalization, the small firms can no more remain isolated from the global technological and structural changes. Given these changes, both policy makers and enterprises will need to proactively search out new opportunities of growth. The purpose of this part of the paper is to highlight some of these changes and the emerging challenges. The associated policy options are also highlighted.

Small Firms, Clusters and Knowledge Flows

The dynamism and persistence of competitiveness of small firms among industrial clusters, even in the wake of globalization and liberalization in the 1990s, has led researchers to explore the causes of dynamic efficiencies at the cluster level. Cluster studies in the 1980s focused on static advantages of clustering that essentially emerge from lower transaction costs, vertical disintegration of production, availability of skilled manpower and inter-firm interaction within the cluster. Recent studies have focused on dynamic efficiencies that emanate from learning at the cluster level. The "knowledge focus" of cluster studies is of recent origin and we know very little about the nature of knowledge flows and their determinants. A recent review of the literature (Basant, 2002) suggested that the nature and quantum of knowledge flows in a cluster would depend upon its (a) internal characteristics, (b) external linkages and (c) external policy and economic environment. Apart from other issues, the role of external linkages of a cluster in knowledge flows is increasingly being recognized. In the process, the linkages between sources of knowledge that are internal and external to a cluster have become important.

Clusters as Systems of Innovation

In recent years, some studies have emphasized that geographically bounded clusters should be viewed as systems of knowledge accumulation rather than just production systems (Bell and Albu, 1999). In the same vein, some others have argued that the focus should be on processes that convert the cluster based production systems 'into' innovation systems (Mytelka and Farinelli, 2000; Mytelka and Rellegrin, 2001). In simple terms, 'combinations of internally organized capabilities with external knowledge resources, and the links between them' is referred to as innovation or knowledge systems (Bell and Albu, 1999: 1718). An application of 'innovation systems' concept to a cluster requires an analysis of capabilities internal to the cluster (or firms in a cluster) and their linkages with external knowledge sources including organizations like universities, R&D institutions, certification agencies, external firms, customers and so on. Policies that facilitate knowledge creation and flows that build capabilities of firms in a cluster are therefore critical for their long term competitiveness.

Knowledge flows can take various forms. There is ample evidence to suggest that knowledge relating to the 3 Ps (products, processes and practices) gets transferred to cluster firms through a variety of mechanisms. Besides, firms in geographically bounded clusters use a variety of sources for knowledge acquisition. Table 3 summarizes these sources. And sources both within and outside the clusters are relevant. There is enough evidence to show that the notion of passive technology diffusion in clusters is significantly over-stated; knowledge flows are largely a function of cluster firms' effort to acquire knowledge from various sources. Existence of linkages and the potential of building new ones that can facilitate

knowledge flows are obviously useful. The key policy issue then is to understand how such useful linkages can be induced and strengthened through policy initiatives.

Nature and Determinants of Knowledge Flows

Available literature on geographically bounded clusters suggests that various dimensions of the cluster contribute to knowledge flows in the cluster itself. These cluster specific factors can include: size of the cluster, extent of diversification, division of labour (and the associated buyer-supplier relations), nature of products (hi-tech v/s traditional), levels of competition, nature of markets, location (developing/developed economy), links with other clusters and non-cluster firms (global networks, MNCs etc) and so on. Other important factors relate to public policy and macro-economic environment. Figure 13 summarizes the variety of factors and processes that impinge on knowledge flows in a geographically bounded cluster.

A large variety of variables have been identified that contribute to knowledge flows in a cluster. Table 4 provides a summary. Overall, the literature seems to have focused more on intra-cluster linkages than on linkages outside the cluster. This has changed in recent years with external linkages becoming an important focus of enquiry as these are increasingly seen as major sources of knowledge flows. External alliances, global production networks (GPNs) and exports are probably the most important "external" linkages for a cluster today. The emergence of GPNs and ICTs has modified the external linkages of a cluster in a significant manner. While GPNs strengthen global decentralization and specialization of production, extensive use of ICTs has made these links easier and facilitates exchange of knowledge.[15] Exports and alliances are also increasingly becoming important. Similarly, presence of MNCs in a cluster can also help build capabilities through knowledge flows. But this will depend on MNC's behaviour vis-à-vis knowledge sharing. This in turn seems to be influenced by the levels of dominance of MNCs in a cluster (e.g. an enclave like situation may reduce interaction with local entities) and the capability levels of the cluster (e.g. higher capability inducing more interaction). Therefore, policies that enhance participation in GPNs, formation of alliances, growth of export, sharing of knowledge by MNCs and adding directly to the capability of cluster firms would be useful. In general, trade liberalization and other liberal economic policies have facilitated the growth of production networks spread across continents (see Ernst et. al., 2001 and Ernst and Kim 2001). But these policy initiatives will need to be reviewed in the context of the policy distortions discussed in the last section.

Is diversity of the cluster important for technology flows and cluster growth? Some evidence suggests that diversity may contribute to sustainability and resurgence of a cluster due to synergistic knowledge flows. This issue is important from the point of view of "designing" a cluster by policy makers and for locating enterprises by entrepreneurs. Induced clusters, those

[15] GPNs, it has been suggested (Ernst et al, 2001, Ernst and Kim, 2001) are an organizational innovation that enables network flagships to combine concentrated dispersion with systemic forms of integration. The potential of knowledge flows through GPNs is extremely high as these networks integrate a wide variety of entities to which the flagship is linked: subsidiaries, joint ventures, affiliates, suppliers, subcontractors, distribution channels, R&D alliances and other cooperative agreements such as standards consortia. Given this elaborate network, knowledge flows to a cluster will probably depend upon the 'location' of the cluster in this network and on the strategy of the network flagship. Ernst (2002) argues that even when GPN activities do not involve formal R&D, considerable learning can take place. Knowledge flows can relate to proto-typing and ramping-up, tooling and equipment, benchmarking of productivity, testing, process adaptation, product customization and supply chain coordination.

created through the creation of science parks in recent years tend to focus on specific sectors, like IT and biotechnology. The importance of diversity in a cluster would suggest that designing of mono-industry clusters may not be very useful. Besides, the convergence of technologies, briefly referred to below, would also imply creation of multi-sector clusters to be a better policy option.

There is also some evidence to suggest that increase in competition, policy induced or otherwise, enhances inter-firm linkages in a cluster and contribute to knowledge flows. At the same time, mainly vertical linkages develop during such period; horizontal links remain weak. Moreover, "moderate" and, not 'excessive competition' seems to enhance such processes. This makes the role of policy instruments enhancing competition complex. But this evidence seems to suggest that the gradual liberalization process may be more appropriate, a process which India seems to have adopted. It once again underlines the importance of policy distortions discussed above, as they tend to result in "excessive or unfair competition".

Similarly, exposure to demanding markets generally enhances knowledge generation and flows. This suggests that policies enhancing exports would be useful. However, a few issues remain unresolved. Should one always view domestic markets as less demanding ones? Operating in diverse markets can facilitate learning. How does one strategically maximize such learning? How and when "demanding" buyers contribute to learning? Some studies have shown that large volume exports may not necessarily lead to knowledge flows even if customers are large and demanding, if channels of feedback are weak. Medium sized and small external buyers with smaller ability to substitute their suppliers at will may have greater incentives to provide the feedback to their suppliers. Is learning through smaller but quality intensive orders absorbed better than large volume ones, especially by smaller first time exporters? How can policy facilitate such links for slower but dynamic learning processes? These questions still remain unanswered. However, it is reasonably clear that policies would need to enlarge the domestic as well as export markets. Some such policy options have already been discussed in the last section.

The potentially increasingly role of external linkages (e.g., GPNs, outsourcing etc.) for the growth of small firms in India, whether within or outside the cluster, also becomes evident from the changing structure of specific sectors globally and the changes in technologies that are making decentralization of R&D and production possible. In what follows, we discuss three such sectors, where these changes can provide important opportunities for Indian SMEs in the near future. These sectors are IT, pharmaceuticals and auto-components. We take up these industries because the (future) comparative advantage which is just beginning to be revealed in these industries is very large. They are also modern industries, have a preponderance of SMEs but include significant numbers of large firms, a wide variety of sizes are intrinsically possible therein, and are technology based with vast spillover effects on the rest of the economy. Moreover conventional policy studies in internalising the governmental or administrative categories of small firms (purely manufacturing) pertaining to the SMEs in these industries are few and far between. The interfirm aspect in these industries is also very large, so that in getting the policy (both macro economic and at the level of the cluster / region and industry) right for these industries and for the SMEs in them, we would have got the policy right for most of the modern and dynamic segments

EMERGING ENTREPRENEURIAL OPPORTUNITIES IN SPECIFIC SECTORS FOR SMES

This section explores the emerging opportunities for Indian SMEs in three sectors, namely information technology, pharmaceuticals and auto-components. The key argument is that

changes in technology and global industrial structure provides opportunities for Indian SMEs and policy initiatives will need to explicitly recognize these emerging opportunities and use appropriate instruments to facilitate the utilization of these opportunities by Indian firms.

The IT Industry and Small Firms

The Indian IT industry is one of its most dynamic sectors and has seen a variety of changes in recent years. Participation of small firms in this sector has been quite high.

The Size Structure of the IT Industry in India

The data on the size structure of the Indian IT industry is very rudimentary.[16] The NASSCOM data suggests that IT industry has a large number of small players. About 88 per cent of the total firms have a turnover of less than Rs. 10 crore. This suggests that large shares of IT firms are small entrepreneurial ventures managed by self-employed individuals. However, the industry is highly skewed in terms of share of the market: top 5 firms had a share of 32 per cent in the revenues. The next top 47 firms with a turnover between 100 and 1000 crore had a share of 35 per cent. Firms with turnover of less than 100 crore (98 per cent of the total firms) had a share of only 11 per cent (NASSCOM, 2003: 39-40).

Moreover, a comparison of the size distribution of firms for recent years with some earlier years would suggest that small firms have grown slowly in recent years (NASSCOM, 2003). Besides, the share of MNCs in the IT sector increased from about 12 per cent in 1997-98 to 22 per cent in 2001-02 (Kumar, 2001, NASSCOM, 2003: 39-40). Moreover, MNCs have a significant share of about 45 per cent in the ITES market. These trends would suggest that the deepening of the IT labour market would significantly be affected by links (a) between MNCs and local firms and (b) between large and small IT firms. If cost pressures and extension of IT related infrastructure lead to a rise in such links whereby domestic small firms can participate in the contracts undertaken by large domestic firms and MNCs, labour market deepening would be facilitated. Except for some anecdotal evidence, there is no evidence on whether such linkages are on the rise.

Interestingly, the NSSO data shows that more than 38 per cent workers in IT occupations worked in small, informal enterprises in 1999-2000. The share of public and private limited companies is 25 and 28 per cent respectively (Table 5). The data (not reported here) also showed that about 13 per cent of the IT industry workers were self-employed. This suggests that the relatively low entry barriers in IT industry, many small firms can set up enterprises in this domain. Thus, the demand for IT occupation workers is not dominated by the large public and private limited firms; small firms also participate in the IT labour market in a significant manner.

The NASSCOM estimates reflected the dominance of large firms in the revenues generated by the IT industry. It can be argued that the links of these firms with smaller firms would facilitate deepening of the IT labour market. But distribution of IT occupation workers by type of enterprise suggests that deepening of the market in the form of smaller firms' participation is already taking place. While the distribution of revenues may be skewed in favour of large firms in the IT industry, the employment of IT occupation workers in IT industry and across all industry groups is fairly equally distributed across small and large

[16] The next few paragraphs about the growth of the IT sector in India is based on Basant and Rani (2004)

enterprises. It will be interesting to find out the extent to which such "decentralization" of IT employment is due to the emergence of linkages between large and small firms.

The Transition from the Onshore to Offshore Model

One of the major transitions in the Indian IT industry has been the on-shore to off-shore model. Whatever may have been the underlying motivations, the transition from the onshore to the offshore model deepened the IT labour market in India as Indian firms could now utilize the segmentation in the labour market to their advantage. For onsite tasks, they could only hire engineers and that too from good institutions because the nature of these tasks was very diverse with complex elements. On-site these professionals have to undertake these complex tasks as well as a host of activities in the lower and medium level of the value-chain. The offshore model permits Indian firms to hire/use non-engineers and engineers from less renowned universities to undertake less complex tasks, leaving the higher-level tasks for senior and better-trained employees. This put a downward pressure on labour costs that were rising rapidly due to the growing demand and inadequate supply of people with multiple skills. Consequently, more people with different skill-sets can now participate in the IT labour markets. This in turn would lead to better allocation of resources and employment to a larger variety of IT professionals. Of course, this transition will be affected by the costs of co-ordinating different types of labour.

The changes in the composition of the IT sector combined with the offshore model can potentially create larger opportunities of employment for workers with different characteristics. The realization of this potential, however, depends on a variety of factors. For example, the possibilities of intra-country outsourcing between large firms and small firms and between firms located in the metropolises and smaller towns can impinge on the participation of various types of workers in the IT labour market. A critical policy concern in the near future should be the creation of conditions that can facilitate such “outsourcing or subcontracting”. A related issue is that of creating conditions whereby overseas firms directly outsource work to smaller Indian companies. Obviously, good telecom infrastructure would go a long way in facilitating such outsourcing. At a more generic level better general and technical education infrastructure would also help this to happen.

The Transition to High Value-added Activities

The Indian IT industry is undergoing a major change. Despite concerns regarding industry's lock-in into low end tasks, one can see some shift towards more value added services, an emerging specialization in embedded software and even a marginal shift towards products. Indian firms have moved from less to more complex, risky, investment intensive and profitable IT activities. This transition has largely been facilitated by inter-firm alliances, including those of the outsourcing variety (see Basant, 2004a), without which it may not have been possible. Broadly, such alliances and other processes like enhanced competition from low cost producers from within and outside the country have resulted in the following types of changes in Indian IT firms: (a) Diversification of service offerings and markets; (b) Acquisition of knowledge & implementation capabilities in early stages of the product/package life cycle; (c) Specialization in service provision through acquisition of domain knowledge and entry into specific verticals like telecom, banking etc; and (d) Transition from a low-end “service” firm to a high-end "service or a “product” firm.

The first three processes have been more dominant and within each the complexity of tasks has increased. In fact, the transition to "products" has been among the slowest but in recent

times, one observes beginnings of the last process. Interactions with the industry persons suggest that a large number of SMEs are also involved in this transition. In fact, some of the smaller firms have made this transition faster.[17]

Intellectual property (IP) related issues were not so important so far because Indian firms were still largely involved in low-end work. However, as Indian IT firms have started to do more complex tasks, IP will become increasingly important. For example, if outsourcing or other inter-firm linkages involve application service provision, sharing of data would be required making IP an important issue. Broadly, IP related issues might be critical for linkages involving complex IT tasks, especially in the early part of the technology and product life cycles. For example, as firms move to software development for databases and other packaged applications, security of data made available for testing would become critical. Similarly, as Indian firms seek high-end BPO opportunities like claims processing, personal data protection for overseas customers would be important.[18] For MNCs, it is claimed, a more stringent IP policy would reduce contracting costs and the cost of legal remedies (Basant, 2004b).

Changes in Industrial Structure

The competition in Indian IT industry is on the rise. The competition is not only coming from other low cost locations but also from within the country as well, especially from MNC subsidiaries that have set up shop in the country. It is well known that the growth of the Indian IT industry has largely been fuelled by their participation in export markets through outsourcing or other types of inter-firm alliances. A typical trajectory of international inter-firm IT alliances has been that they start with small offshore projects, which subsequently become large and more complex. With time and building of trust, these projects take the shape of dedicated development centers and then of equity JVs. Often, foreign firms prefer ownership transfer. Liberal FDI and M&A policies facilitate these transitions and provide some certainty to foreign firms who have strategically decided to follow this trajectory. As these alliances become more technology intensive, IPR regime may also become important apart from the policy instruments mentioned above. This has started to happen.

There has been another change in the industry structure that may have implications for the IP regime. In the earlier phase of alliances in the IT sector, typically large Tier-1 US firms built linkages with Tier-1 Indian firms. Many of these large Indian firms like Tata Consultancy Services (TCS), Infosys and Wipro have now started to compete with global IT firms like IBM, Electronic Data Systems (EDS) and Computer Sciences Corporation (CSC). In this phase when Indian collaborators of yester years are beginning to compete with the large US multinationals, it is imminent that Tier-1 firms of each country build linkages with smaller (Tier-2/Tier 3) firms in the other nation. Global Tier-1 IT firms would need to ally with Tier-2/Tier 3 Indian IT services firms to compete with Tier-1 Indian IT services firms. In response, Tier-1 Indian IT service firms would need to ally with Tier 2/3 (typically front-end marketing or consulting) firms in the US or Europe.[19] Such entry into high end and product related activities would further enhance the importance of IPRs for Indian firms. In addition, data protection would also become critical.

[17] Basant (2004b) documents intellectual property and alliance activities of Indian IT firms, many of which are relatively small.
[18] Some companies tackle such problems by having stringent in-house security procedures like not allowing employees to take home source code to work on it. Some BPO companies do not download data but work only on the client's site.
[19] See Basant (2004a and 2004b) for a few examples and discussion of such alliances.

Emerging Technological Opportunities

Technologies underlying the IT industry are changing very rapidly. In many instances, these technological changes bring in possibilities of a change in the global industrial structure. While there are many instances of this type, we focus on just two to highlight the potential impact on the participation of smaller firms in the IT industry. The first relates to changes in the semi-conductor industry/embedded software and the other to the interaction of IT with other industrial sectors. New technologies have modified global production networks significantly in the area of semi-conductors in recent years. Similarly, the munificence of IT based technologies across a variety of sectors has spawned several new technological and economic opportunities. It can be argued that changes in these technologies and the associated changes in the industrial structures are likely to throw up new entrepreneurial opportunities for Indian IT firms.

Changes in the Semi-conductor Industry

With the advent of System on Chip (SOC) integration in this industry, the strategic options of firms have changed.[20] As SOCs become larger and more complex, it will become difficult for firms to remain competitive in all the functional design elements that are being integrated into the SOC. An emerging solution for this problem is the fast growing market of design modules (DM) licensed out by small-specialized firms. This change can potentially "disintegrate" the semi-conductor industry providing niche opportunities for small firms. According to Linden and Somaya (2003), this shift can be quite significant:

"The emerging SOC-based industry structure typifies the historical shifting between integrated and ever more fragmented organizational modes of production in the electronics industry. Just as specialization in components proliferated in the PCB-based electronic systems, the SOC era is showing signs of industry fragmentation driven by specialization in the disembodied semiconductor designs that are being licensed between firms." (Linden and Somaya, 2003: 550)

Recent studies (see for example, Bhuyan 2002) and the information summarized in Basant (2004b) shows that many Indian firms are already active in this emerging domain and are participating in the emerging networks of SOC creation. India may have missed the IC manufacturing opportunity; it sure can exploit this new opportunity. But this will require sharper focus on intellectual property and a more active participation in standards creation as that will drive the creation of markets in this sector.[21]

Use of IT in other sectors

With technological change several new opportunities for IT firms to work on the boundaries of other sectors like the pharmaceutical, biotechnology and auto are becoming available. For example, the innovation system in the pharmaceutical industry has become very complex. The complexity of R&D, which is essentially science based, has been on the rise due to the emerging synergies in the research streams of conventional chemistry, biotechnology and information technology (IT). It is becoming increasingly important to integrate knowledge at various levels of research in biomedical sciences, pharmaceuticals and IT. Riding on the synergies between different disciplines, the drug discovery and commercialization processes

[20] For detailed discussion of this issue, see Linden and Somaya (2003).
[21] Linden and Somaya (2003) provide an excellent account of these strategic market creating opportunities.

are undergoing significant change. A variety of new developments are creating opportunities for relatively small firms to enter into specialized high-tech areas.[22] Policy instruments that can facilitate such participation are critical. Like the changes in the semiconductor industry, changes in the drug discovery processes also entail new opportunities for Indian IT firms to enter these domains. All these domains are very IP intensive and would require a more proactive participation of Indian firms in IP protection. This will obviously lead to enhanced participation of these firms in IP generation and creation. There is evidence to show that Indian IT firms are increasingly exploiting these domains as well and most of them are small.[23] Similar processes are underway in sectors like auto, where use of IT is on the rise creating new market opportunities for Indian firms to make (often IP based) entry or expansion (Basant 2004b). An appropriate IP policy therefore becomes critical for the growth of SMEs in these domains.

There is another reason why IPR policy needs to be reviewed. In the near future, major market growth in IT would take place in Asia, especially in India and China. Consequently, firms will need to create IT products that satisfy the specific needs of these markets. When this trend picks up, the Indian IT firms would find themselves much closer to the market and would be able to respond better to the emerging market needs than firms that are located elsewhere. One of the problems, Indian firms have faced vis-à-vis product development has been the "distance from the market". Lack of proximity to the large western markets where the IT products currently sell has put them at a disadvantage. Such a disadvantage may get reduced if the local markets pick up. The IP regime needs for the sector need to be seen in this context.

Interactions with IT professionals suggest that while IP related issues were not as important in the outsourcing activity so far as most Indian firms were involved in low end tasks. Transition to high-end tasks has brought these issues to the fore. As with several other legal issues, some standard remedies for IPR related concerns include indemnification clauses in the contracts, contracting with a US legal entity owned by the Indian firms so that the US laws govern the contract, third country arbitration processes and so on. Obviously, complexity of contingency clauses and the preference for a US entity increase the transaction costs for the contracting parties. Firms also find it difficult to license inventions in the absence of less well-defined (read less stringent) IP rights. It is not surprising, therefore, that the Indian industry is seeking more and more stringent IP regime in India, especially with respect to protection of software

[22] The following developments are particularly important to understand the potential use of IT in drug discovery processes: (1) Increasing use of combinatorial chemistry to develop gene libraries that can be hired for IT based screening resulting in significant *reduction in the entry barriers in initial screening business*; (2) Use of computer aided development of molecular designs to filter molecules and compounds for testing with wet chemistry. This biotechnology-software interface has meant *higher success rates and speedier selection of compounds*; (3) Design of actual drugs with the help of computers. Software are *used to reduce uncertainty in drug development;* (4) Use of new IT based technologies in pre-clinical development to reduce the drug development cycle. For example, cassette dosing and simultaneous optimization of toxicity, bioavailability and pharmacokinetics has reduced the time required for clinical trials. *Service firms have emerged to do such trials;* (5) Computerized safety and efficacy trials conducted on patients avoid useless regimes to reduce number and size of trials. This saves time and money. These new technologies have also *facilitated the emergence of contract research organization (CROs).* (Basant, 2004b provides more details on these opportunities).

[23] Strand Genomics, a spin out firm from a well-known institute of science education (Indian Institute of Science, Bangalore) is a prime example of this trend. Other firms active in this domain include Agilent Technologies (Life Sciences and Chemical Analysis), Wipro Health Science, SysArris Software and Kshema Technologies. All these are small firms.

related inventions.[24] The policy makers may need to look beyond the protection of software through copyrights and semi-conductor chip protection that the TRIPS agreement mandates and creatively look at other options of IP protection like patenting algorithms. The key policy issue would be to ascertain if IP protection for algorithms, currently available in countries like the US, is desirable to tap the opportunities discussed above. A sui generis system for the protection of semi-conductor designs and protection for software embodied in a process or a machine is available in the new (proposed IP) regime. The IT industry seems to think that IP protection should be enhanced and made similar to that available in the US. However, preliminary investigation suggests that the current levels of IP protection with good implementation and data protection would be adequate for the time being. But more systematic work is required to assess the utility of such changes.

Small Firms in the Pharmaceutical Industry

There are a large number of pharmaceutical firms in India, almost all of which are small. The impending changes in the IPR regime have thrown up a variety of challenges for these firms. It is critical for long term growth of this industry that these firms do not get locked into very low end activities where low costs are the only source of competitiveness. At least, a significant share of these firms should get opportunities to move up the value chain. Recent changes in the innovation system in the pharmaceutical industry provide some such opportunities.

Recent Changes in Pharmaceutical and Biotechnology Industries and Emerging Entrepreneurial Opportunities

The complexity of R&D, which is essentially science based, has been on the rise due to the emerging synergies in the research streams of conventional chemistry, biotechnology and information technology (IT). It is becoming increasingly important to integrate knowledge at various levels of research in biomedical sciences, pharmaceuticals and IT. Institutional factors are very important for such integration and coordination. For example, institutional coordination across disciplines between academic research labs, public sector research establishments, private industrial research units, pharmaceutical firms of all sizes, CROs and hospitals will be critical for such integration to take place.

Riding on the synergies between different disciplines, the drug discovery and commercialization processes are undergoing significant change. A large number of technological changes in the drug development process were listed above in the context of new entrepreneurial opportunities in the IT industry. In addition, the shift from wet chemistry to bio-technology based processes for identifying/ developing a molecule or compound has *reduced the economies of scale and combinatorial* chemistry has helped develop gene libraries that can be hired for screening resulting in significant *reduction in the entry barriers in initial screening business.*

Overall, these technological developments have created a situation where drug discovery and development may no more be dominated by large vertically integrated enterprises. Decline in entry barriers in several segments can lead to disintegration of this process. Given good access to software, biotechnology and wet chemistry based skills, many firms in India (even small ones) are well placed to occupy several spaces in this value chain. However, a favourable IPR regime and good implementation of the IP laws is essential for these firms to participate in decentralized drug discovery & development process where several firms

[24] See Basant (2004b) for the details of the industry demand on this issue.

perform highly specialized tasks. This would be particularly so if the entry into these niches is innovation based or if it involves use of protected technologies. With the impending changes in the IPR regimes, Indian firms will need to identify their niches and create appropriate capabilities for occupying these niches. A favourable IPR regime combined with the above mentioned technological developments and the associated uncertainties may also lead to creation of networks and alliances between firms having diverse capabilities on the one hand and educational institutions & public sector entities on the other.

Emerging Opportunities and MNC Strategies

These changes in the drug discovery processes and the emerging liberal policy environment will have significant implications for the innovation system in the pharmaceutical sector and for the strategies adopted by firms in this sector, especially small ones. Moreover, from the perspective of the transnational corporations, three strategic changes are expected to take place:

- FDI in overseas manufacturing may increase with special focus on contract manufacturing of drugs (even the ones that are still on patent);
- More on more pharmaceutical firms may locate part of their R&D activities in India through R&D centres or through outsourcing of technological activities; and
- The research portfolio of MNCs may shift (at least marginally) in favour of diseases relevant for the developing countries, especially those that have large populations with reasonable ability to pay. Such a shift would require specialized skills of firms, individuals and R&D institutions in developing countries like India.

Admittedly, the strategies that the MNCs would adopt in for countries like India will depend on a variety of factors, including the availability of skills and capabilities as well as the nature of regulation and competition in the host countries. Prima facie, apart from an appropriate FDI policy, a proactive regulatory structure can, in fact, facilitate the exploitation of these strategic opportunities by Indian pharmaceutical, biotechnology and IT companies. An appropriate IP regime, for example, may not only help exploit the opportunities created by the changes in drug development technology and the emerging structure of the pharmaceutical and biotechnology sectors but also help respond effectively to the emerging R&D and production strategies of the MNCs. We may gain a great deal if India becomes a hub for R&D and manufacturing related sub-contracting in these sectors.

Emerging Opportunities and Strategies of Local Firms

Preliminary explorations suggest that pharmaceutical firms in India are exploring the following options:

- Develop new pharmaceutical products. So far, the trend is that firms find new chemical entities, patent them in major international markets, develop them up to a point and then license them to MNCs for further developments and clinical trials (G*row and sell* strategy);
- Focus R&D on drug delivery mechanisms and bio-enhancers to improve the efficacy of existing patented drugs. Once this is achieved, cross licensing possibilities with the patent holder of the drugs that are affected by these inventions can be explored;
- Focus on process R&D for patented drugs to acquire process patents and explore cross-licensing/ licensing options. These process inventions are also very useful once the drug gets off patent;

- Build alliances with biotech and IT firms and also with educational institutions to develop new technologies for pharmaceutical research. IT firms are also gradually entering into the health domain;
- Focus on contract manufacturing of patented drugs;
- Focus on drugs, which are going to be off patent in the near future. This strategy is particularly being followed to enter developed country markets as soon as the relevant patent expires;
- Produce drugs that are off patent today; and
- Combine some of these strategies with co-marketing/marketing arrangements.

It is evident SMEs may find their niches, both at the "product development" stages as well as in manufacturing. It is also evident that the IP regime and its implementation will affect most of these strategies. This will be particularly the case with respect to product patenting, data exclusivity etc. As mentioned, within the first strategy, the firms may have different options. The inventing company may not manufacture the product it has developed; it may not even conduct expensive trials required before commercialization of the drug. The company can *grow and sell* its product to another company that will conduct trials, manufacture and commercialize the product. Apparently, the licensing arrangements are proliferating because the costs of taking an invention from conception to market are escalating. Laboratory work and a series of trials and pilot projects follow basic research. Only when the trials are successful, can the drug be commercialized. At each stage, the costs and risks increase exponentially and so it make sense for Indian firms, who have limited resources but an abundance of low-cost and highly trained scientists, to focus on basic results and license the results. *Grow and sell* strategy can potentially exploit relatively inexpensive research skills of Indian scientists without taking undue risks. Very few firms may, however, have the product development and licensing skills and capabilities to implement this strategy. Exploitation of relatively inexpensive research skills and process capabilities that have been acquired over the years may be more feasible, if a firms wishes to opt for an R&D intensive strategy. The other strategies to exploit emerging niches in drug discovery, drug delivery, process innovations etc. may be more relevant for relatively smaller enterprises.

In the context of the impending product patent regime, the future of Indian pharmaceutical companies, especially the small ones has been debated at length in recent years. There is no doubt that the life of domestic firms will not be as cosy as it used to be in a regime where product patents were granted. While there will be a lot of scope for firms to continue producing off-patent drugs, it is important that more and more of them start looking at the emerging opportunities pro-actively. While a product patent regime should facilitate the exploitation of these opportunities, the policy makers would need to look at "new use patents" and patents for "new drug delivery mechanisms" more closely, as these can potentially be areas where Indian firms can contribute. Admittedly, if the new use is interpreted very liberally, MNCs can use it for "ever-greening" of their existing patents and the same can probably happen in the case of drug delivery mechanisms. The policy challenge is to make patenting of both possible without diluting the novelty criteria that would othersie permit the so called ever-greening. The changes in the IP regime will have to be combined with other regulatory changes associated with clinical trials and approval of drugs. Without these, Indian firms, especially small ones will not be able to benefit from the decentralisation of drug discovery and clinical trail processes. Finally, whether we like it or not, Indian firms will have to gear up to the new IP regime challenges. While efforts at the multilateral agencies to correct the anomalies of the TRIPS agreement should continue, policy makers should facilitate better understanding of the strategic use of the IP protection.

The Indian Auto-Components Sector

The Indian auto-component sector has done very well in recent years by becoming a very vibrant and active member of the global production networks. Both outsourcing by large auto multinationals and the technological up-gradation of the domestic auto industry have contributed to this process (Basant, Chandra and Sastry, 1999; Pani, 2000). In general, Indian manufacturing sector has developed decent engineering skills over the last forty odd years. There is ample evidence to show that the sub-contracting and ancillarization processes in East Asia, especially Japan, in the auto industry have benefited small entrepreneurs in a significant manner by providing opportunities for specializing in specific activities and development. High degrees of specialization also created a need for decentralized R&D activities. Auto majors started to expect their subcontractors to improve efficiencies continuously by undertaking modifications in products, processes and practices. This sector has emerged as an important segment where global production networks have achieved maturity. Policies that help Indian auto-component firms to participate in these networks would be useful (see below).

The issue of IP protection may be relevant for this sector as well. The petty patent system prevalent in Japan, South Korea and some other countries provided significant benefit to small entrepreneurs to protect their incremental inventions and created a market for technology licensing and cross licensing. If the Indian auto-component manufacturers wish to get into more value-adding activities (e.g., more complex components or sub-assemblies), they will need to undertake R&D. Since it is a fast growing employment intensive sector, it is important for policy makers to understand the emerging policy needs to facilitate this transition. It will relevant to find out if modifications in the existing IPR regimes or its implementation can support such a transition.

If emerging opportunities in different sectors are to be exploited, apart from a somewhat more stringent and nuanced IP policy regime (e.g., availability of petty patents in the case of auto-components, new use and drug delivery patents for pharmaceuticals), the availability of capital would be critical. It has been argued earlier that venture capital is difficult to get for start-ups and the credit availability is in general a problem. Without availability of capital, the ability of firms to exploit emerging opportunities would be significantly constrained. While these would be important for firms to become part of global production networks, factors that influence the extent of sub-contracting in general may also play an important role to build linkages between small and large firms, both domestic and global. Studies show that small firms with good technological capabilities are more likely to become part of the sub-contracting networks (see Appendix). As of now, capabilities in the practices domain are critical but as the sub-contracting linkages (especially international ones) mature process and product capabilities would also become important. As of now policy measures to enhance the capabilities of SSEs through good manufacturing and other practices would facilitate their integration in the global production chains. Tax breaks and other incentives for training in this area and for adopting good manufacturing practices are likely to be useful in the current phase of development. With time incentives to enhance other capabilities might also become critical. And insofar as building of process capabilities require investment in machinery etc. credit constraints once again may create the bottleneck for such capability formation.

The results of some empirical studies show that if a firm produces a reserved item, it significantly enhances the probability of its participation in the sub-contracting activities but not the extent of sub-contracting. (see Appendix). Apparently, product reservation does provide the opportunity for sub-contracting but the extent of which such an opportunity can be utilized depends on the capabilities of the firms. As the policy of product de-reservation

unfolds, the opportunities for sub-contracting may shrink and the utility of better capabilities (practices etc.) may go up even further for the growth and sustainability of SSEs making these products. Therefore, incentives to enhance capabilities at the firm level would remain important as product de-reservation policies are adopted.

Finally, currently SSEs with excise registration do not have a significantly higher propensity to enter into sub-contracting relationships. While there is some evidence that excise registration does increase the propensity to sub-contract, this tendency was not very significant when this study was done. This may have changed in recent years as MODVAT has become more pervasive. With VAT becoming a reality outsourcing firms would prefer small firms with excise registration as sub-contractors. Therefore, VAT can create conditions conducive for sub-contracting.

The ownership and size of plant and machinery aspect dominate current policy towards small firms and indeed much of the discussion. In contrast the functionality derived from known aspects of the industrial structure and the expected evolution of the same, the well known large –small firm relationships and relationships among small firms, all, should have lead to a more functional understanding of small firms – which would recognise the sharp difference s between house hold firms, merchant capital that organises some of these, modern small firms and among them those that are essentially in links with large firms and so on. For a detailed discussion see Morris, S. (2001). Thus even today the need for small firms to have investments and technology flows from large and foreign firms is not adequately recognised. With the 'logic' of reservation being out of question today, there cannot be any logic either to restraining equity (including equity participation) and other non-equity relations between small and large. Only these can allow the small firms to overcome the large disadvantage of size in accessing technology and capital and not to speak of markets. Little else but such relations have worked, the attempt of states and parastatals to band together small firms or to provide them services have typically failed. The functionality of small firms well into the industrialisation process that was assured in Japan was to a large extent due to the kieretsu and earlier Zaibatsu like structures. The argument becomes doubly important since in India there being 'schismatic' labour market the need to combine competitive factors (which is the comparative advantage of large) with factor cost advantage (which is largely denied to large firms) makes restraints on equity participation, as also the continuation of reservation highly restrictive to the ability of the Indian manufacturing sector to play the large role in global markets that it could.

SECTION III
POLICIES FOR RAPID GROWTH AND TRANSFORMATION OF SMALL FIRMS[25]

Policy in a liberalised environment cannot be of the discretionary case by case variety. Nor is there any place for those that necessarily result in inefficiency or underutilisation of resources. Thus policies that veer towards creating entry barriers or which stand in the way of the optimal utilisation of the country's resources are quite out of place. For a liberal economy that is also transforming the issue of use of labour especially idle labour is perhaps the most important.

Sector and industry oriented policies similarly would also have to be driven by the incentive effects of polices. As such policies that require continual administrative energies and efforts are out of question.

The reforms thus far do not have a clear strategy to address the issue of growth and employment in a clear manner except the assumption that growth would take care of the same. While not entirely in the wrong the issue really becomes one of the rate of growth that is achieved. Sustained very high rate of growth (above 8% in the context today in India) would of course be able to achieve this since a labour productivity growth of 4 to 4.5 % which is to be assumed can result in a labour absorption rate of 3.5 to 4% which is about a percent above the growth in the rate of the workforce. But slower growth of around 6% which is what we seem to be achieving in the 90s (and more so the even slower growth of under 5% in manufacturing since 1998) would keep disguised unemployment alive for long. Similarly, the transformation of firms and especially SMEs which have little autonomous capacity is itself a function of growth oriented policies. Thus the first major policy insight is that the macro policies in striving for higher growth along the lines of East Asian export led growth with supportive macro policies would be the first best.

Labour Flexibility is Not Insufficient

The militancy of labour and lack of hire and fire as a constraint on exports and on improving the competitive potential of manufacturing in India has acquired the status of being an `absolute truth.' While it is true that labor flexibility in organized Indian industry is much below that in East Asia and especially in China, the problem has been overstated. Ever since the early eighties labour flexibility obtained (at a price no doubt) first in Mumbai and then in the south has improved greatly the control that managers have over the production process. In any case the unorganised workers did not have the ability to resist hire and fire. Labour militancy has sharply declined. Therefore macro economic policies need not be constrained by the fear of labour inflexibility.

Exchange Rate Conservatism

Policy in recent times (certainly since 1996-97) has underestimated the potential of the economy to grow[26], and of the ability of the economy (and especially of small firms) to

[25] This section draws from "Executive Summary" of Morris. S. et al (2001).
[26] Earlier public investments used to be about 50% of gross capital formation. Today they are under 25%. Public investments have large delays and lost overruns, so their declining share would have raised the potential output to be able to grow at a percent or more. See Morris, S. (2003).

respond to price incentives. Thus, the real effective exchange rate (REER) has been allowed to appreciate, and unless corrected, would hurt the sector very badly. See Fig. 14 which shows a close relationship between manufactured exports and the real effective exchange rate, the former following the latter with the expected lag of between 9 and 16 months. A fairly large currency depreciation to take the REER below the level that it was after the structural adjustment, c. April 1993, would provide the boost to this sector; allowing for its fast growth. Fast growth of the SSI sector and of exports, has become a necessity for the high and sustainable growth of the economy.

De-reservation

Reservation based on the identity of the product, should go completely. Reservation has stunted the growth and transformation of the economy and of the small firm sector in particular. It has most certainly allowed particular small firms to delay improvements, and survive with less efficient use of factors. The dynamic inefficiencies and distortions are far more significant than the static efficiency penalty that the economy pays. The removal of reservation may have to be linked to enhanced credit flow to the sector, (and to a credible commitment on the part of government to do so) to politically enable quick de-reservation.

Employment Concerns

The need to slow down the decline of traditional small firms (with some of them transforming into modern firms) exists, since the employment elasticity of household/traditional firms is much larger than that of the large firms, or even of the larger of the small firms. Since employment growth has been small especially in the nineties such household firms would have to be "supported". Movement to high growth strategies would of course eliminate that need.

Key Role of Growth

But policy has not so far committed itself unambiguously to high growth. If 5-6% is all that is achieved in terms of manufacturing growth , then it becomes necessary to slow down the decline in house-based/traditional industries, although this would only be the second best option. In any case this would not mean continuation of reservation, but support to high employment intensity 'traditional' industries such as brassware, art-work and handicrafts, garments, etc many of which are export oriented or could easily become so, and so are also amenable to policies that boost exports.

'Cluster Approach'

Many of the traditional small firms are in clusters, and a cluster oriented approach would be important for their success. Indeed cluster orientation would be necessary for any micro action, or extension.

Geographical Identifiers

The necessary ingredients for the success of such an approach, would be (1) extension built around associations, and leaders from the clusters; (2) protection to non-private, but regionally defined collective brand-names like "Kanchipuram", "Tangail", "Aligarhi", "Moradabadi", "Jetpuri", "Kattaki", etc; (3) financing of collectives via financing of cooperatives/associations.

A strategy based on leveraging on trade names /brand names, many of which could be argued to be "geographic indicators", with much equity world wide, would require immediate changes in our intellectual property rights regime. Otherwise, we would lose out in significantly many market segments. The potential of the Indian market to create its own specific products, distinct from western culture, as incomes in India rise, is high. This is because modernisation in India has to confront a parallel process of 'sanskritisation' or 'indianisation'.

Tax Concessions

The logic of continuing with excise duty concessions for small firms arises principally from two important factors. Costs of excise registration and dealing with excise authorities are too large, and there is a 'fixed' component to this cost which cannot be spread over a large value of turnover[27]. Only significantly lower excise rates for small firms could compensate them sufficiently.

Factories Act

As far as the application of the Factories Act is concerned, we suggest that, the criteria of "with and without the use of power" be entirely dispensed with. All units with more than 50 employees including the entrepreneur and family labour, be brought /retained under (all) the provisions of the Factories Act. And all other units be entirely exempt from its provisions. Furthermore, all such units be brought under the Employees Compensation Act, so that the focus of the government can shift to implementing the law rather than to its systematic vitiation by authorities and entrepreneurs alike. The need to rationalize the various laws pertaining to employment has been often repeated. It is of particular interest to small firms, especially to those on the verge of rapid expansion.

Credit Direction

Credit is the single most important constraint for small firms. The credit market, and the functioning of banks are most vital for the performance of small enterprises. There are strong structural underpinnings to the inadequate flow: the organisation structure of banks and the processes within them, have taken them far from task orientation, and have created a specific bias against small loan portfolios. Venture capital can have a major role only in industries with much technological change, which would be a tiny part of the sector. Risk funds in other small firms, world over is typically entrepreneurial and internal, and can at best only be marginally supplemented by external sources, such as from mother units for subcontracting firms.

Incentivisation of Credit

Incentivisation of priority sector targets is the solution. The policy of directed lending to small firms (the targets for priority sector lending) ought to shift from targets or quotas to incentives to banks for lending to small firms. This would change the attitude of banks to small firms. Instead of viewing lending to them as a constraint, they would begin to see it as an opportunity. Incentivisation also aids the process of overall reorientation of the banks towards

[27] We would rule out procedural reform to a large extent, in the Indian context, since that would mean that change can happen from within in an entrenched bureaucratic system. There are many reasons for this pessimistic picture, which are too remote from the topic. The reader may like to consult Morris, S. (2003).

real assessment, rather than the ritualised, and rule and direction based 'assessment' and lending that is current in nationalised banks. Only real assessment and unmediated experience of banks with small firms can lower the risk perception with regard to small firms.

Regulation of Banks

For the success of such a policy the RBI would have to considerably reorient its direction and supervision of banks, granting them operational freedom, and allowing for performance based incentives. It would mean heterogeneity in the way banks manage their internal processes. Most RBI guidelines that pertain to the internal working of banks currently constrain the behaviour of officers, leading them to shirk ownership of responsibility. Responsible risk taking in lending would have to re-emerge. Only then would accounts development (among small firm) grow.

SLR Incentives for Banks

Tax based incentives for banks and financial intermediaries are possible. Specifically we recommend that the tax rate applicable to a bank or a financial intermediary with a portfolio such that as the proportion of its total lending small firms is ***x*** to be:

(1-x)*T, where ***T*** is the normal tax rate applicable. Such a tax concession should also be extended to all institutions whether term lending or in working capital provision, whether banking or otherwise, and whether in the private, cooperative or public sectors.

SLR & CRR based incentives for banks too are possible. An additional incentive for banks can be provided as follows: If the normal statutory reserve requirement is ***S***, (SLR+CRR), then actual reserve requirement on a bank lending to small firms can be made equal to ***S*(1-p.x)*** where ***p*** is the benefit on SLR and CRR in lending to small firms; ***S*** is SLR+CRR and **x** is the share of small firms in total lending portfolio of the bank. We would suggest ***p = 0.20*** i.e. a 20% reduction in SLR and CRR for a bank that has its entire portfolio (highly unlikely) in small firms, at this juncture.

No Concessional Interest

Concessions on interest rates are dysfunctional, and the margin above PLR rates ought be subject to a ceiling We are not in favour of any concessional rates to small firms, whether on term or working capital. Nevertheless a ceiling of 4% over the prime lending rates would be necessary to avoid the problem of adverse selection. Similarly for export related credit to small firms, rates not more than 2% above the lowest export credit rate should apply.

We see a process whereby FIs and banks would, over a period, develop their sectoral, and client size and type specialisations, and find the right balance between diversified and specialised portfolio, optimising between risks and returns.

Portfolio Tradability

Tradability of loan portfolios of small firms could be retained along with targets, during the same period of transition.

With the financial sector reforms well under way, the older way of targeted lending, and entirely specialised financial intermediaries are dysfunctional; since portfolio freedom (arising from the need to diversify risk) would be a major element of financial reform. This necessarily means that government instead of being worried about whether SIDBI, or SFC

etc. have met their gargets should put in place incentives, as mentioned above, which not only SIDBI and SFCs but other FIs, private FIs and banks could also take advantage off. It is natural that nationalised banks, cooperative banks, smaller private (especially domestic) banks, so called rural banks would have a larger portion of their portfolio in small firms given the significant incentives that we are proposing, and the comparative advantage they have, in having a vast network of branches (even if some of these are usefully wound up).

Reform of DFIs

The SFCs would all have to go through quick restructuring and refocus on promotion of new enterprises typically in such areas, and in activities where vast positive external effects are anticipated, such as in technology based small firms, promising industries, nodal industries, industrial estate corporations, in exchanging specific infrastructural support to existing clusters of small firms, etc.

Other Credit Instrument

Small firms which have subcontracting relations with large firms, are squeezed by large firms, particularly during a tight credit situation. This is well known. The Delayed Payments Act is worse than useless and should be got rid off, forthwith. Instead, a scheme for discounting small firms' receivables from the large, by banks and financial institutions, would have to be immediately put in place. The scheme would necessarily have to provide for some additional benefit (either in the form of higher credit limits or lower rates) for such participating large firms. Such a scheme by discounting the receivables of small firms (payables of large firms) would go a long way to make available timely credit to those small firms that sell to reputed large firms, even if at high effective cost to the small firms. The risks in such credit provision are few and the costs of intermediation very low. It can be a major window of profit for banks, if the RBI guidelines are amended to make such a scheme feasible.

The Problem of Collateral

Banks typically hold collateral far above their exposure to small units. Little is known about the actual market value of collateral held by banks. RBI should immediately institute a study, so that the magnitude of the problem can be brought to light. The potential of the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act, to reduce the risks in lending needs to be unlocked.

Strategic Undervaluation of Currency

Strategic undervaluation of the rupee, and trading houses' activities are important to start the export bandwagon working. Given the lack of a strategic undervaluation of the currency, it is necessary to considerably enhance the incentives that are available to exporters. One method, which would work as long there is significant import repression, would be to link imports by trading and export houses at special (low or zero) duties to exports of the small firm sector. Thus, there is an opportunity to gain from a commitment to reduce tariffs on imports. There is of course limited scope for this measure. Relaxation of FDI norms in the trading sector would also be important.

Overcoming Tariff Inversion

Inversion in the tariff needs to go or be neutralised by strategic undervaluation of currency The effect of tariff structure on the competitiveness of small firms, has not been adequately

recognised. Despite import liberalisation the tariffs on materials like steel, copper and many non-ferrous metals, plastics, many chemicals, paper, etc. remain high in comparison to tariffs on manufactured goods (other than consumer goods). This has created the problem of a significant 'inversion' in the tariff structure, which specifically hurts small firms, since their potential to produce tradables (exports and import competing manufactured goods) is large.

Infrastructure Constraints

Such small firms as are dependent upon infrastructure would always find constraints in infrastructure to affect them more severely than large firms. Investments in infrastructure especially general roads, power, railways, water supply would help to improve the performance of small firms significantly.

For all small firms power and water continue to remain constraints shamefully after nearly 10 years of reform. The solutions are quite simple, but seem to miss the policy makers. Thus at least power problems could have been overcome by allowing small firms open access to generators (Morris, S., 1999). And unfortunately there is little in the power policy initiatives that make solutions for small firms possible. Captive generation is out of the reach of most small firms, and cooperative solutions are hardly feasible given the power policy that does not allow distribution rights to private generating companies. High energy and power costs have kept Indian export industries out of comparative advantage industries, confining them to "absolute" advantage industries. Such high costs come down if the taxes and cross subsidies on energy are made vattable entirely.

Making Way for Rapid Growth of IT, BT Pharma and Auto Industries

The opportunities provided by the modern industries that have large exports or potentially could have due to the unfoldment of the country's long term comparative and absolute advantage –technology based and skill labour using industries such as IT, BT, pharmaceuticals and auto oriented industries, also need to be exploited. Industrial transformation has rarely been the all around and simultaneous growth of *all* industries. Some are bound to grow much faster since with factor cost advantages, as critical levels of achievement and performance are reached there are vast positive feed back effects which give very high growth rates in particular industries. The need of the hour is to take the growth of these industries to the highest possible levels.

Taxes a Problem

In automobiles taxes are still very large and the inverted tariffs / high cost of materials and energy that are uncompensated hurt India as a base for manufactures. Thus the Hyundai Company's programme to use India as a base for manufacturing was scaled down much due to the appreciation of the rupee since the stabilisation exercise of 1992-93. It is a mother industry to a large number of very modern ancillaries many of them small firms in the southern part of the country.

High Energy Taxes

There are also structural retardants on the automobile industry. For long considered as a 'luxury,' the industry was all but killed through highly restrictive capacity constraints. It continues to be subject to substantially large taxes. The market is also heavily restricted by poor roads and very high taxes on petrol. The contrast with Thailand is most remarkable. Thailand with the strategy of emerging as the largest auto industry base in South East Asia

has gone about promoting the industry. Besides the pursuit of macro policies consistent with export led growth it has moderate taxes on automobiles, and its fuel so that the home market is as large as possible. Almost all leading MNCs in the auto sector use Thailand as a base. India, since it has its own aggressive auto firms, and all the factor cost advantages, could with similar policies attract FDI with a vengeance to lead the process of the exit of the world auto industry from the advanced countries, and to the transformation of the sector. SMEs in the sector would then transform. Besides growth orientation opening up SMEs to foreign capital and technology and to investment from local large firms would be necessary.

What is true of automobiles is also potentially true of other industries like entertainment and consumer electronics, computers white goods manufacture etc. Reservation of course is an anathema in these industries since the essence of the industry in these areas lie in the interfirm aspect.

IPR Regimes

In IT, biotechnology, pharmaceutical industries and other related off-shoring activities the challenge lies in bringing about better IPR regimes that reduces the risk faced by foreign firms in their operations in India. In all these industries IPR regimes that is able to balance the interest of Indian firms and yet to lead to much industrial relocation is necessary. The spillover benefits can be quite considerable.

City Infrastructure Crucial

India has at the moment absolute advantages in the off-shoring of many activities in these industries and with clusters like those in Bangalore, Hyderabad, Gurgaon and Pune taking root the growth prospects are immense. But there is much apprehension that infrastructural and public services constraints and poor governance in India's cities and through its economy more generally would take its toll. Municipal infrastructure is a major aspect of the public management failure and its correction in at least a few cities is of crucial importance to the growth of the off-shoring activities and growth in these industries. While the problem statements are simple enough, the solutions lie in attacking the problem at its roots for example, in the structure of municipal corporations, in the planning process, and in the design of cities.[28]

Venture Capital Opportunities are Large

Venture capital operations remain rudimentary in India and not particularly bold. There is a case for financial institutions to develop strong venture capital arms to finance innovative small firms that have a good potential to emerge in the near future in many industries.

Financial Institutions Need Revival

The setting right of the state finance and investment corporations to not merely lend to small firms but to leverage even larger flows from banks and the markets to small firms (as also to large firms that have strong inter-firm linkages with small) is urgent. Many interesting instruments and measures are possible.

[28] See the India Infrastructure Reports, 2001, 2002, 2003, for details on how the infrastructure problems can be fixed (Morris, S. (ed.)2001, 2003, and 2004), (Morris & Rajiv Shekhar (eds.) 2002).

Petty Patents Regime

The addition of a petty patent register could considerably enhance the extraction of value from the many innovations that take place in the SME sector.

Government Procurement

Concessional purchases by the state and parastatals from small firms is one of the factors responsible for sustaining a shoddy goods market in India (Morris, S. (2001d). But the problem here is more with the processes involved in government procurement which are 'designed to fail'. See for instance Pandey, Ajay (2002). A small under 5% price preference for small firms is of no harm.

Other measures that obviously need attention are:

Legal Reforms

The umpteen laws and regulations need to be merged into one. There are over 7 acts / authorities that pertain to labour ranging form the Employee Compensation Act to the Unionisation act. These could be merged into one.

Governance Reforms through Pressures of Growth

Small firms bear very heavy burdens in dealing with government. The need to get out of the inspector raj syndrome has been in the forefront for long and cannot be overstressed. We have not stressed these aspects that are widely known not because they are not important, but because we see little hope of the Indian state being able to set this right without the vast pressures that emerge from a growing and increasingly assertive small firm sector.

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Appendix 1

A REVIEW OF GROWTH AND DEVELOPMENT SINCE 1955

There are three distinct periods in the Indian economy that we may infer based on: (i) the patterns of growth, (ii) the nature of policies pursued, (iii) the orientation of the state, (iv) agricultural and trade performance, and (v) the role of the public sector principally See Table 1. The first period which starting from 1955 we may call the Mahalanobis period is one of growth and diversification of the industrial sector, the rise of the public sector in manufacturing and in other areas of physical and social infrastructure, large investments in the capital good sectors, real appreciation of the currency and discrimination against exports, the severe fall in exports, decreasing openness of the economy, and moderate growth of overall GDP. This was a period when the ideology of growth and development dominated and the assumption was that in the adherence to the plan, growth would ensure benefits to all sections of society. For reasons that we will not discuss here while the plan succeeded in ensuring the diversification of the economy, growth was much too small to overcome the problem of unemployment. More importantly, the recessions of 1964-65 brought the plan crashing down.

Principally the inadequacy of demand, and the export pessimism which was a key aspect in the design of the Plan could not have led to a supply side strategy to be consistently pushed. The next period from 1965-66 to 1978-79 was one of very slow growth – the so called "Hindu period" where in the redistribution agenda came to the fore. Politically during this period the argument of directly addressing the incomes of the poor through what where to become sop programmes arose. The plan and policy moved far from the growth and transformation agenda. Small firm promotion got a boost in this period, but growth rates of the industrial sector remained low. Despite the green revolution the agricultural growth remained just a wee bit below 3%, and during this long stagnation other countries overtook India. The Plan and much of the control had already become dysfunctional but they continued to be important sources of rent.

The recovery of the 80s saw the revival of manufacturing, including small firm manufacturing and from about 1986 that of exports though even as late 1994 the country openness ratio was only that which had been achieved in the fifties. The growth of the eighties was based on higher agricultural performance (3.2% per annum), increasing government expenditure which proved unsustainable, and revival of public investments which were now directed better towards critically short infrastructure - principally power. From the mid-eighties exports revived as there was partial correction of the rupee and private investments too began to rise much faster. Indeed the rise in private investment raised the investment rate over the period. Essentially, because the rupee got out of line and was only partially corrected and that too only in 1986-87, the high growth proved to be macroeconomically unsustainable with inflation rising to 10% and continuing to rise by 1990-91. And the fiscal deficit of the central government reached 8 % of GDP. In the seventies and the sixties the fiscal deficit had never gone above 4.5% .

The stabilisation episode of 1990-91 to 1991-92 is too well known to recall. Essentially the economy adjusted far better and quicker than anticipated, so that after a two year period of slow down or decline the GDP growth reached a record of nearly 7% which it maintained for the next four years. The growth was led by the revival of industries and services, and most importantly by the growth in exports which for a four year period grew at rates close to 20% per annum in dollar terms. The responsiveness of the exports to the exchange rate was one of the best ever by a stabilising economy and its extent had not been anticipated even by the designers of the stabilisation. The current account deficit all but collapsed, and could have

turned positive on a trend basis if the rupee value had been maintained. This was despite continual liberalisation in the import regime. The implications of this collapse of the current account and the reduction in the trade deficit despite major regime shift liberalising imports is yet to be widely realised. The factors underlying the revival were the further rise in private investments, export growth in response to the depreciation of the currency, faster agricultural growth at 3.4%. The rise in private investments was strong enough to compensate the fall in public investments and still raise the level of investments, which at its best had reached a level of 29% of GDP!

But the golden moment was lost when the rupee was allowed to get out line completely. With a delay, the exports as one could have easily expected collapsed, and it was easy to predict in 1997 that the economy would soon slow down unless the rupee was corrected (Morris, S. 1997). Private investments too could then be anticipated to not continue rising at the fast rate since further rise in private investment was contingent on the government being able to bring about regulatory and policy clarity in areas like power and water and urban infrastructure. This it was not able to do. Growth soon cam down to more modest levels of 5%. And then the East Asian Crisis happened to virtually foreclose any quick revival since the response of the RBI was to use punishing interest rates time and again to rein in possible capital outflows, rather than to depreciate the currency. The rupee in real terms continued to be higher than its level immediately after the stabilisation so that export growth could never really reach the level of 20% p.a.. Conservative monetary policy being maintained over the next four years meant that a revival, even with the fall in the interest rates could not happen. A fiscal boost was necessary.

That could only come with the investments in the Golden Quadrilateral in 2002, which was followed by a strong agricultural growth and both these factors revived growth to 8% which can, but will not, be maintained since the monetary stance of the RBI remains one of conservative monetary targeting. Only services sector could maintain high growth during the entire period. Industrial and manufacturing growth had fallen to low 3.5% by 1999 and could rise to only 9% even in the revival of 2002-03. This is because the services sector being driven by the exports of software and related activities and having a near absolute advantage was less dependent upon the exchange rate than manufacturing exports which has to deeply compete with domestic sales. Agriculture despite its variations continued on an average to grow at 3.2 to 3.4%. Agriculture at this growth rate creates the potential for the GDP to grow much faster than what was achieved over the nineties.

Since 1994-95 an important new dimension which the Indian economy had to face was the macroeconomic management of large capital inflows on account of both portfolio and direct investments. With strong band wagon effects, it was inevitable that a significant part of the same would have to be sterilised if the monetary targets had to be maintained. The resulting tightening of domestic credit particularly hurt small firms and local businesses many of which sold out to MNCs given the non level playing field that the asymmetry brought about. Small firm growth during the period after the reform more or less is similar to the growth of manufacturing as such. The slow down from 1996-97 though may be less severe than in the case of large firms as whole (which includes the public sector). The relative decline of the private large firm sector alone would have been quite large since the sector had grown most rapidly in the period immediately following the stabilisation.

Appendix 2

DETERMINANTS OF SUB-CONTRACTING: SOME LESSONS FOR POLICY

The discussion so far suggests that the sustainability and growth of the small firms would largely depend on whether they are able to become part of larger global, national or regional networks. This seems to be true for a variety of sectors – IT, pharmaceuticals and auto-components. If this is the case, it is important to understand the conditions under which SMEs tend to and are able to build such linkages. A recent study analyzed the characteristics of small firms that participate in sub-contracting activities (Pani, 2000). Some results of this study are in this section to get some insights on this issue. The data used in the study was collected from a large number of small scale enterprises (SSEs) in various industry groups located in eleven states of the country. To gain some insights into a specific sector, sub-contracting in the auto-components industry was also analyzed. The results of the rigorous multivariate analyses undertaken in this study provide some interesting insights.

While age did not show up as a major discriminating factor between sub-contracting and non-sun-contracting SSEs, size in terms of employment was an important determinant. Both incidence and extent of sub-contracting were significantly higher among smaller firms. This was the case for the auto-component sector as well as for firms across industry groups.

Interestingly, if SSEs of all industry groups are taken together, export orientation of a firm had a negative impact on the incidence and extent of sub-contracting. However, the export orientation of auto-component firms had a positive impact on sub-contracting. This suggests that integration of global auto-component markets and the resultant international sub-contracting has created conditions where exports and sub-contracting have become complementary activities for auto-component SSEs. The same is not true of an "average" small scale unit where international and local markets remain very distinct. The entry of international players in the Indian auto-sector has apparently resulted in a situation where domestic auto-component markets have become somewhat similar to the international markets. Other sectors may also see similar integration in the near future.

This brings us to the issue of standards and capabilities that the SSEs have access to and what the globalized markets demand. The study provided some interesting insights into the emerging capability requirements for sub-contracting relationships. It explored the links between capabilities and sub-contracting in a variety of ways. While in the larger sample of firms in all industry groups, technical education of the entrepreneur and quality certification was used as a capability measure, specific capability indices were used in the case of auto-component firms. The incidence and extent of sub-contracting was found to be significantly and positively linked with the technical education of the entrepreneur but not with quality certification. Apparently, quality certification is still not a significant discriminator of a firm's ability to deliver good quality products and the entrepreneur's technical background remains an important indicator of quality for outsourcing units. In any case, quality certification is a relatively new phenomenon for Indian manufacturers especially among small units. It is an expensive process and relatively few firms have opted for it across industries. This might change in a globalized scenario.

In the case of auto-component firms, capability indices were created in three domains – product, process and processes. Firms making more complex products, using more sophisticated process and practices had higher capability indices. The estimated results showed that only practice related capabilities significantly increased the incidence of sub-

contracting among small auto-component firms; product and process capabilities did not make a significant difference. A more detailed exploration of capabilities showed that practices like good manufacturing systems / practices and quality control procedures had a significant positive impact on sub-contracting activity. Thus, good manufacturing and quality practices seem to be important for outsourcing among auto-component firms. This may change as competitive processes build-up and capabilities like proto-type development may become important as had happened in the case of East Asian economics. Interestingly, technological activity (R&D, technological purchase) increases the incidence by sub-contracting but not its extent. Thus, technologically savvy small firms seem to have the option of operating both in the open as well as the sub-contracting markets. In general, therefore, policy measures to enhance the capabilities of SSEs through good manufacturing and other practices would facilitate their integration in the global production chains.

Another interesting finding related to product reservation. The results show that if a firm produces a reserved item, it significantly enhances the probability of its participation in the sub-contracting activities but not the extent of sub-contracting. Product reservation seems to facilitate the participation of small firms in the open as well as sub-contracting markets. Most firms utilize this opportunity to enter into sub-contracting linkages but rely on them to a varying degree.

The insignificant relationship between production of reserved items and the extent of sub-contracting may have a variety of implications. There is likely to be severe competition among firms making reserved items for sub-contracting arrangements as such linkages reduce market uncertainty. As a consequence of such competition, not all firms may get adequate sub-contracting jobs and may have to opt for open market sales to adequately utilize production capabilities. Building on the earlier discussion, an alternative explanation can be that product reservation does provide the opportunity for sub-contracting but the extent of which such an opportunity can be utilized depends on the capabilities of the firms. As the policy of product de-reservation unfolds, the opportunities for sub-contracting may shrink and the utility of better capabilities (practices etc.) may go up even further for the growth and sustainability of SSEs making these products.

Finally, SSEs with excise registration doe not have a significantly higher propensity to enter into sub-contracting relationships. One would have expected that with the advent of MODVAT, outsourcing firms would prefer small firms with excise registration as sub-contractors. While there is some evidence that excise registration does increase the propensity to sub-contract, this tendency was not very significant when this study was done. This may have changed in recent years.

Table 1: Some Aspects of the Various Periods In India's Growth and Development Experience Since 1955

Aspect/Orientation	1955-1965	1965-1979	1979-1990	1990 -1997
Growth	high (4.5-5.0%)	Low (3.8 %)	high (5.5%)	high after adjustment (6.5%)
Agricultural growth	3.00%	< 3.0 %	3.20%	> 3.5%
Agricultural surplus	Low	Low but increasing	High	High
Thrust of macroeconomic policy	Moderately expansionary; to support plan targets; extreme overvaluation of rupee	Restrictive following demand recession and foreign exchange constraints; high overvaluation of rupee	Expansionary; fiscal deficit balloons, late partial correction of overvalued currency	Conservative; monetary targeting and restrictive; focus on fiscal deficit, equilibrium pricing of rupee
Militancy of labour	Low	High	high, declining	Low
Bias against exports	Very high	High	high, declining	Moderate to nil; but no bias in favour
Attitude to foreign capital	Turned positive mid-way but with high degree of control	Restrictive; negl. inflow due to low growth	Improves; flows pick up	Liberalised in quick stages; huge inflows
Protection level	High	Very high	declining, water in tariff	low; tariff inversion for many labour intensive mfg
Industrial concentration	High or monopolistic	Monopolistic or oligopolistic	Oligopolistic and competitive	Oligopolistic and (import) competitive
Import repression	High	very high	Moderately high, declining	Low

-continued

Table 1: Some Aspects of the Various Periods In India's Growth and Development Experience Since 1955 (Continued)

Aspect/Orientation	1955-1965	1965-1979	1979-1990	1990 -1997
Basis of SSI Policy	Economic (the Plan); higher K/O and N/O ratios and dispersal	Intrinsic value of small entrepreneurs; broadbase entrepreneurship; slow down employment; costs to the background; political	Ex-post recognition of vital role of small firms given the 'schism' in the labour market; lobbying power of SSIs; exports of small firms; redistributive	Attempt at economic approach; little change in direct policy; SSIs hit hard; search for a paradigm
SSI policy	Caps on large firms; some reservation	Excise concessions; large scale reservation; government purchase; priority sector credit	Excise, government purchase and reservation; other incentives esp. for exporting firms; priority sector credit	Excise; effective reduction of benefits of reservation; inversion in tariffs hits SSIs hard; declining value of priority sector credit
Subcontracting	Low or negligible	Beginnings	Rising	Vital for survival for many
Exports	Low and declines	Rising slowly during the latter half	Rises	High; but constrained by inversion and exchange rate
Contribution of SSIs	Negligible	Beginning	Rising	Large

Source: Morris, S. (2001) mimeo.

Table 2: A Picture of the Non-Factory Manufacturing Sector in Recent Times (As Revealed from Official Statistical Sources)

		1989-90	1994-95	2000-01	1994-95 over 1989-90 p.a.	2000-01 over 2000-01 p.a.	2000-01 over 1989-90
No of Enterprises (000)							
Rural	OAME	11282	9535	11060	-0.0336	0.0297	-0.0018
	NDME	738	668	630	-0.0199	-0.0117	-0.0144
	DME	224	294	240	0.0544	-0.0406	0.0063
Urban	OAME	2822	2715	3610	-0.0077	0.0570	0.0224
	NDME	889	932	1080	0.0094	0.0295	0.0177
	DME	343	360	400	0.0097	0.0211	0.0140
All	OAME	14104	12250	14670	-0.0282	0.0361	0.0036
	NDME	1627	1600	1710	-0.0033	0.0133	0.0045
	DME	567	654	640	0.0285	-0.0043	0.0110
	Total	16298	14504	17020	-0.0233	0.0320	0.0039
Fixed capital at replacement cost (Rs.crore)							
Rural	OAME	5754	8295	19466	-0.0130	0.0861	0.0410
	NDME	1897	2866	5550	-0.0036	0.0541	0.0279
	DME	1277	2952	7697	0.0815	0.1037	0.0936
Urban	OAME	3048	5864	17761	0.0447	0.1286	0.0905
	NDME	3876	7540	25628	0.0469	0.1478	0.1020
	DME	2586	10231	26544	0.1889	0.1028	0.1419
All	OAME	8802	14160	37227	0.0089	0.1050	0.0613
	NDME	5773	10406	31179	0.0317	0.1268	0.0836
	DME	3863	13183	34241	0.1593	0.1030	0.1286
	Total	18437	37748	102646	0.0572	0.1106	0.0863
Gross value added at current prices (Rs. crore)							
Rural	OAME	5641	8486	16819	-0.0045	0.0579	0.0296
	NDME	1292	1957	3695	-0.0030	0.0498	0.0258
	DME	1597	2928	5992	0.0351	0.0633	0.0504
Urban	OAME	2681	5321	8639	0.0510	0.0247	0.0366
	NDME	3520	5704	11345	0.0104	0.0585	0.0366
	DME	4243	7988	13516	0.0404	0.0316	0.0356
All	OAME	8322	13808	25458	0.0151	0.0459	0.0319
	NDME	4812	7661	15040	0.0069	0.0564	0.0339
	DME	5840	10917	19508	0.0390	0.0407	0.0399
	Total	18974	32385	60006	0.0208	0.0467	0.0349
Employment (million)							
Rural	OAME		17.84	19.15		0.0141	
	NDME		1.83	1.93		0.0111	
	DME		2.45	2.91		0.0339	
Urban	OAME		4.82	5.91		0.0410	
	NDME		3.06	3.63		0.0343	
	DME		3.20	3.55		0.0207	
All	OAME	24.37	22.66	25.06	-0.0145	0.0201	0.0026
	NDME	2.25	4.89	5.56	0.1555	0.0259	0.0825
	DME	5.85	5.65	6.46	-0.0066	0.0266	0.0090
	Total	32.46	33.20	37.08	0.0045	0.0221	0.0121

Source: Morris, S., et at (2001)

Table 3: Sources of Knowledge in Industrial Cluster

A. Intra-firm sources

- Learning by doing (Passive experience of production)
- Improved process and practices derived from trial and error experimentation
- Adaptation and improvement of existing technologies (reverse engineering etc)
- Aligning products, processes and practices within the firm.

B. Intra-cluster sources

- Knowledge spillovers/diffusion between producers
- Knowledge spillovers/diffusion between users and producers of machinery/material or production related services
- Intra-cluster mobility of skilled labour
- Training and skill development through cluster based/mediated initiatives
- Links between enterprises and cluster based technology institutions (technology development, adaptation, testing, certification etc)
- Collaboration among cluster based enterprises for adaptation and technology development (machinery, product design)
- Links between enterprises and customers located in the cluster (MNC, large firms)

C. Sources outside the cluster

- Customers and traders knowledge
- Machinery and other input suppliers
- Collaborative testing or technology development with technology institutions and enterprises outside the cluster.
- Externally sourced training
- Visits to outside clusters/firms

Source: Basant (2002).
Note: Bell and Albu (1999) inspired the creation of this table.

Table 4: Determinants of Knowledge Flows in Geographically Bound Clusters – A Summary

Factors	Likely Effect on Knowledge Flows (Empirical Evidence)
A. Factors Internal to the Cluster	
Spatial proximity	Positive. Passive externalities and potential for active cooperation, flow of tacit knowledge
Horizontal inter-firm linkages between firms producing similar products	Positive but collaboration generally weak
Vertical inter-firm linkages (user-producer)	Positive, collaboration relatively strong
Demanding customers	Positive
High tech (tacit, complexity)	Generally positive but depends on production organization
Traditional industries	Mixed results?
Social capital	Positive, measurement difficult
Cluster structure	
Role of large firms	Positive? Limited evidence
Type of clusters	Limited evidence
Cluster life cycle	Higher during early phases
Existence of facilitating institutional framework	(Tacit knowledge) critical
Universities/R&D institutions	Critical for high-tech and some traditional
Associations (standards, testing etc.)	Important for all types
Nature of industry	Limited evidence, knowledge flows seem to be more important for science based industries
Diversified/industry specific	Limited evidence Nature of knowledge flows may differ
B. External Links of the Customers/Suppliers	
External customers	Positive if customer demanding and has less market power
Links with equipment suppliers/R&D institutes	Generally positive
Links with global production network or commodity chain	Important location in the network/chain matters
Foreign direct investment	Depends on technology gap and objectives of FDI
C. Policy Initiatives, Environment	
Enhancing competition (trade liberalization)	Encourage efforts to access knowledge Optimal levels of competition?
FDI policies	Local manufacturing?

Source: Basant (2002).

Table 5: Distribution of Workers with IT Occupations by Enterprise Type, 1999-2000

Type of Enterprise	System Analysts and Programmers	Automatic Data Processing Machine Operators	Computing Machine Operators	Total
Informal (Partnership/ Proprietary)	17.4	56.4	38.8	38.2
Public Limited Co.	35.0	19.3	23.8	25.3
Private Limited Co.	35.7	18.5	29.0	28.0
Not Known	11.8	5.8	8.3	8.5
All Enterprises	100 (75.5)	100 (79.8)	100 (169.4)	100 (324.7)

Source: Basant and Rani (2004).
Note: Figures in parentheses report number of workers in thousands in each category.

Fig. 1

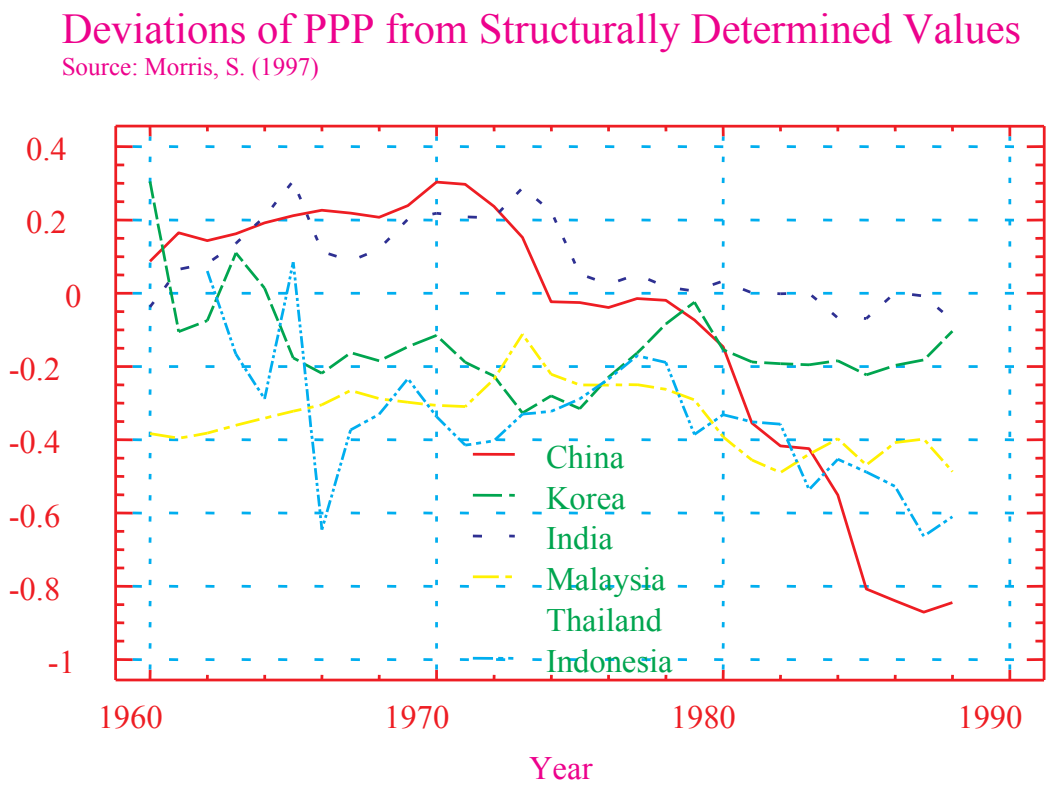

Deviations of PPP from Structurally Determined Values
Source: Morris, S. (1997)
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
1960
1970
1980
1990
Year
China
Korea
India
Malaysia
Thailand
Indonesia

Fig. 2

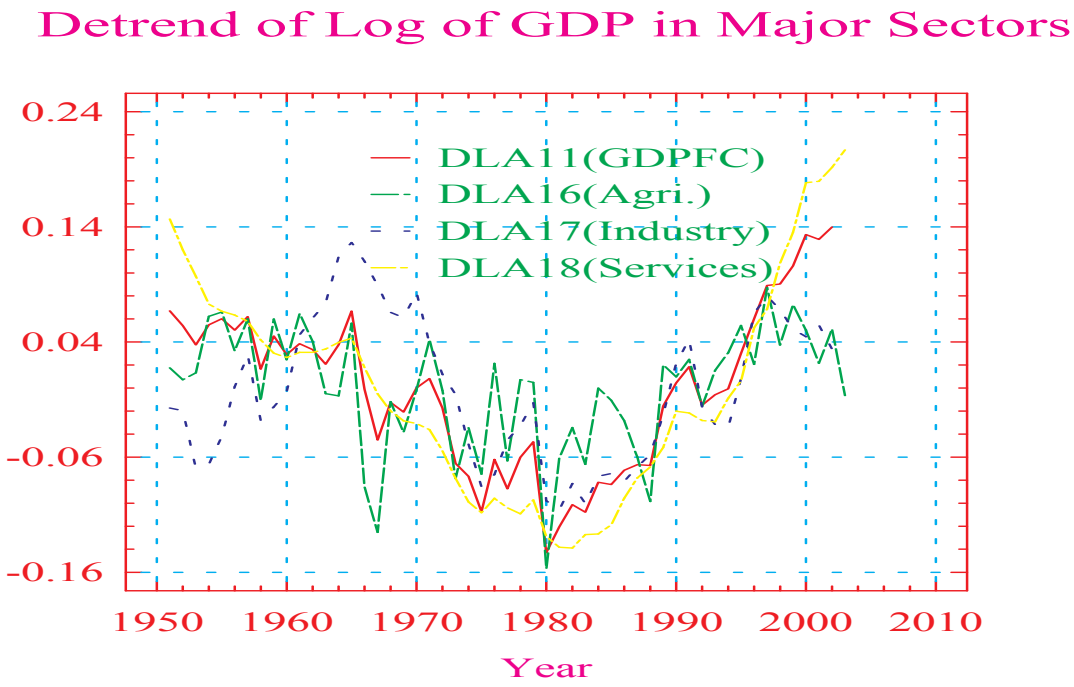

Detrend of Log of GDP in Major Sectors
0.24
0.14
0.04
-0.06
-0.16
1950
1960
1970
1980
1990
2000
2010
Year
DLA11(GDPFC)
DLA16(Agri.)
DLA17(Industry)
DLA18(Services)

Fig.3

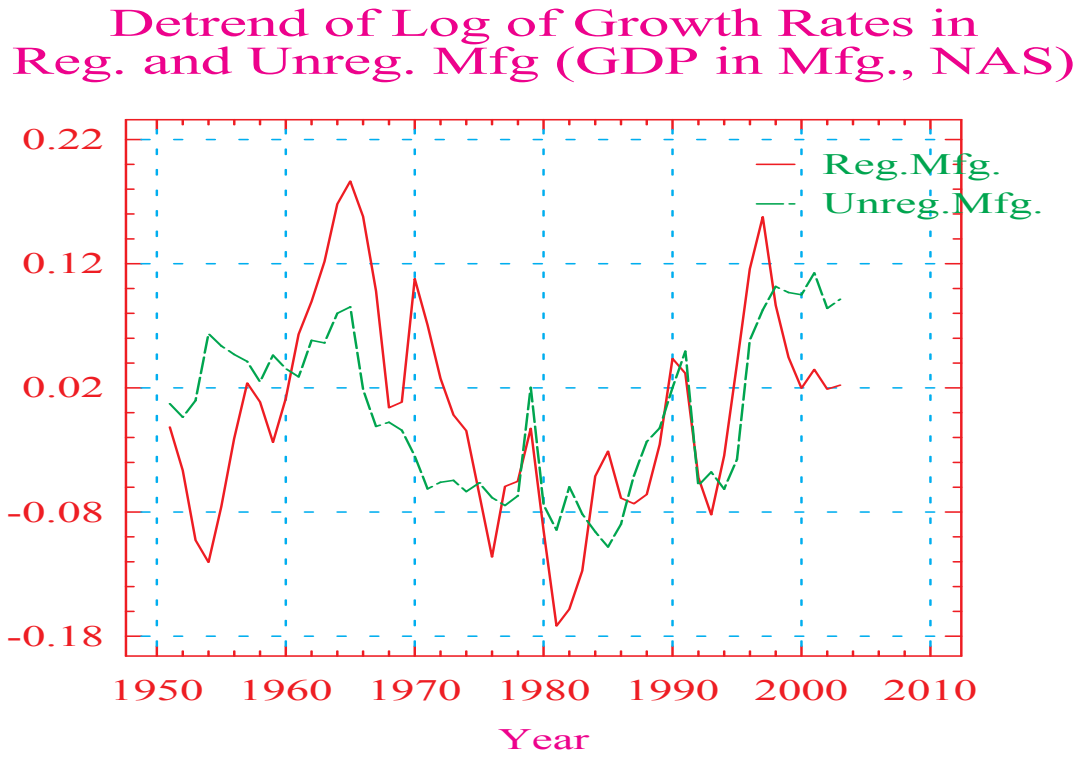

Detrend of Log of Growth Rates in Reg. and Unreg. Mfg (GDP in Mfg., NAS)
0.22
0.12
0.02
-0.08
-0.18
Reg.Mfg.
Unreg.Mfg.
1950
1960
1970
1980
1990
2000
2010
Year

Fig. 4

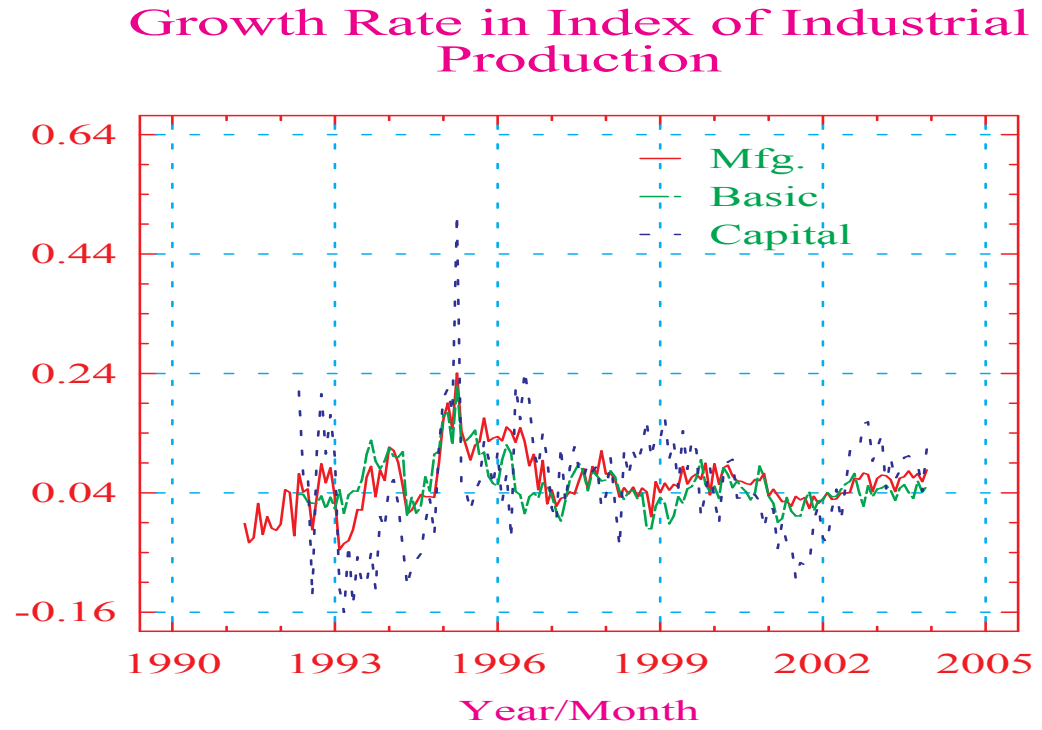

Growth Rate in Index of Industrial Production
0.64
0.44
0.24
0.04
-0.16
Mfg.
Basic
Capital
1990
1993
1996
1999
2002
2005
Year/Month

Fig. 5

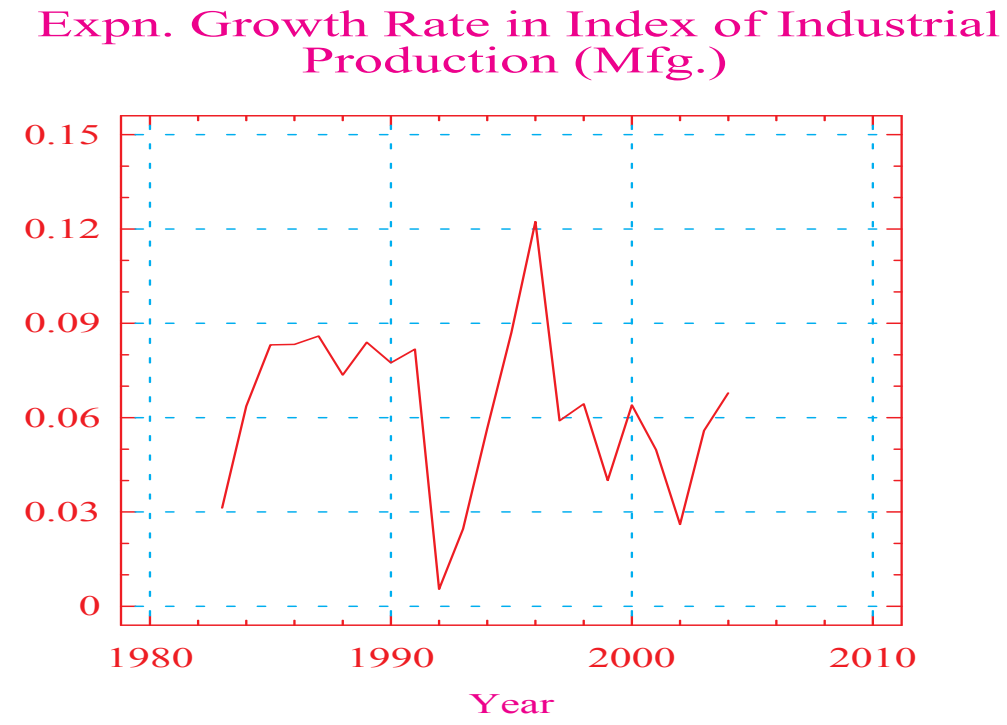

Expn. Growth Rate in Index of Industrial Production (Mfg.)
0.15
0.12
0.09
0.06
0.03
0
1980
1990
2000
2010
Year

Fig. 6

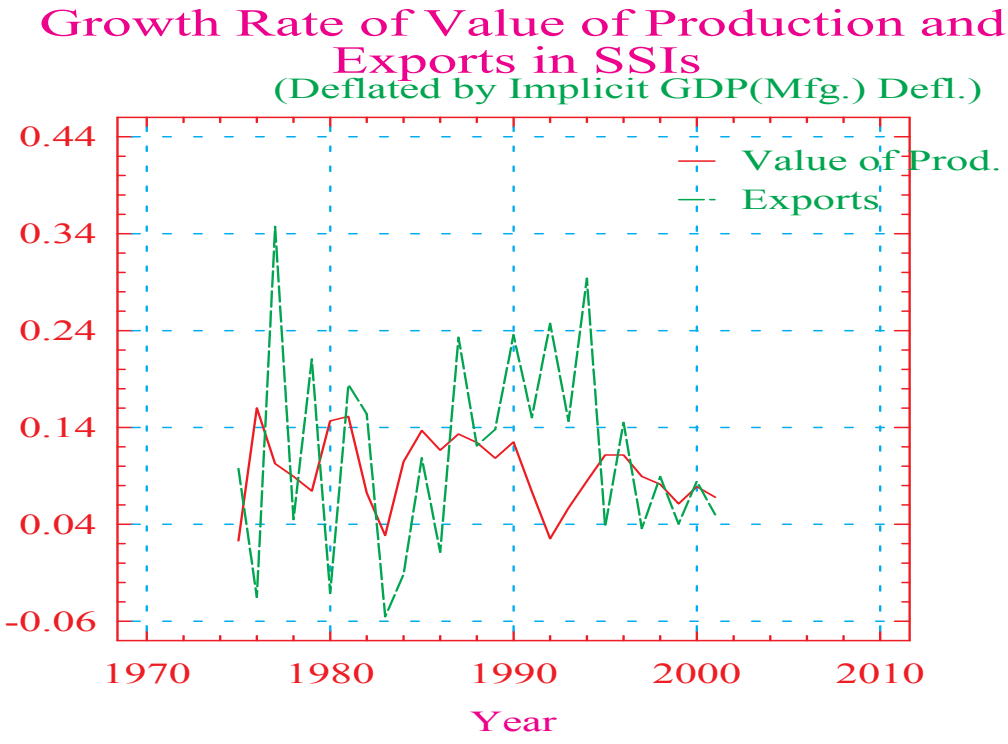

Growth Rate of Value of Production and Exports in SSIs
(Deflated by Implicit GDP(Mfg.) Defl.)
Value of Prod.
Exports
0.44
0.34
0.24
0.14
0.04
-0.06
1970
1980
1990
2000
2010
Year

Fig. 7

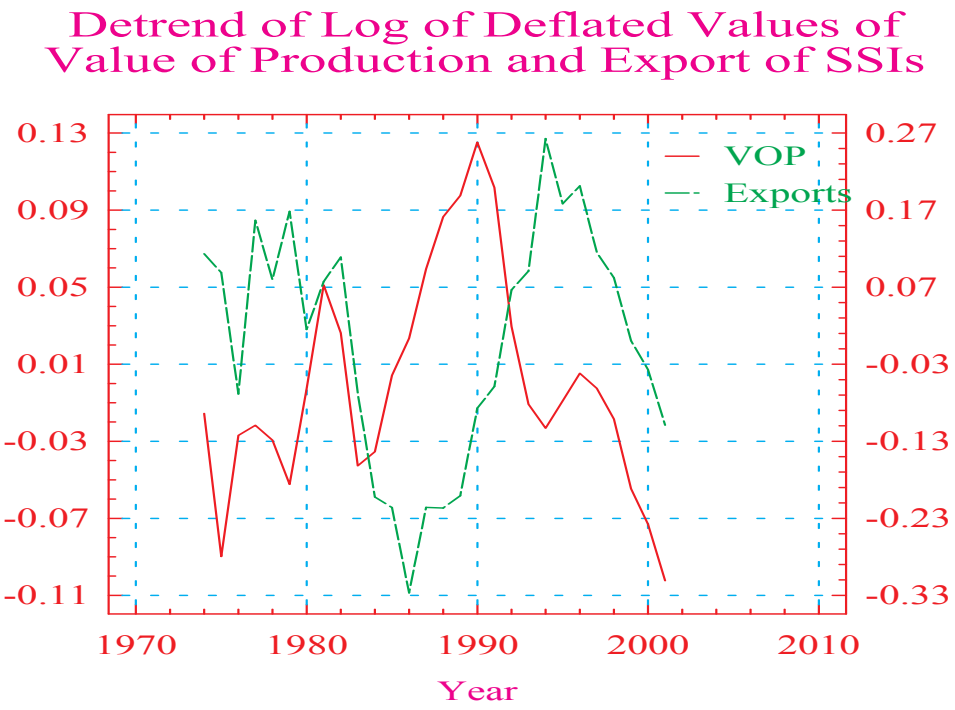

Detrend of Log of Deflated Values of
Value of Production and Export of SSIs
0.13
0.09
0.05
0.01
-0.03
-0.07
-0.11
0.27
0.17
0.07
-0.03
-0.13
-0.23
-0.33
VOP
Exports
1970
1980
1990
2000
2010
Year

Fig. 8

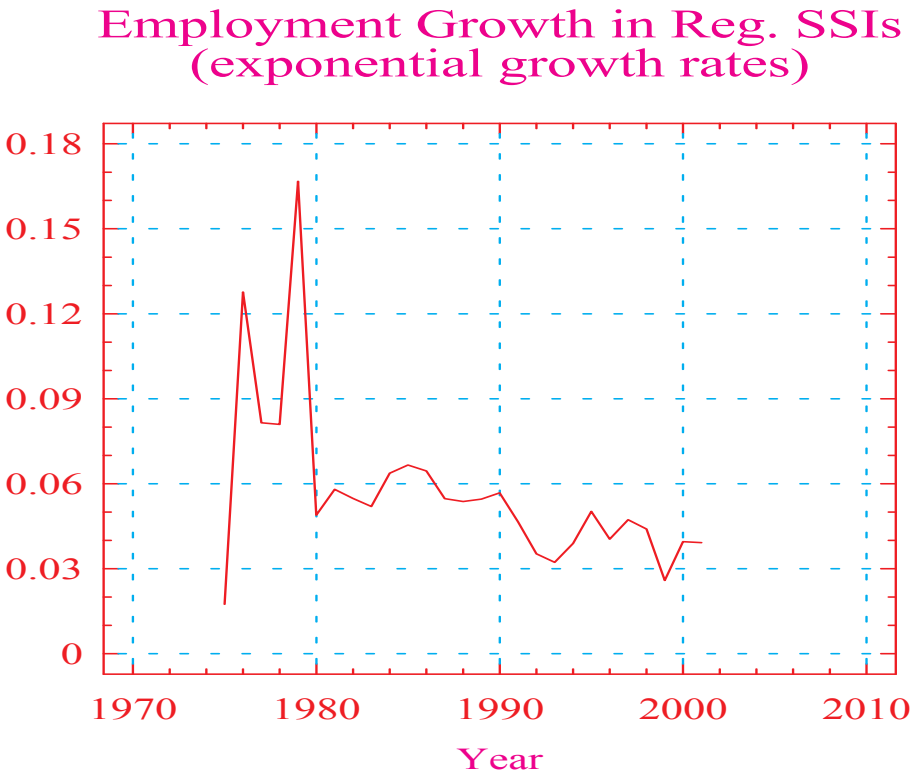

Employment Growth in Reg. SSIs
(exponential growth rates)
0.18
0.15
0.12
0.09
0.06
0.03
0
1970
1980
1990
2000
2010
Year

Fig.9

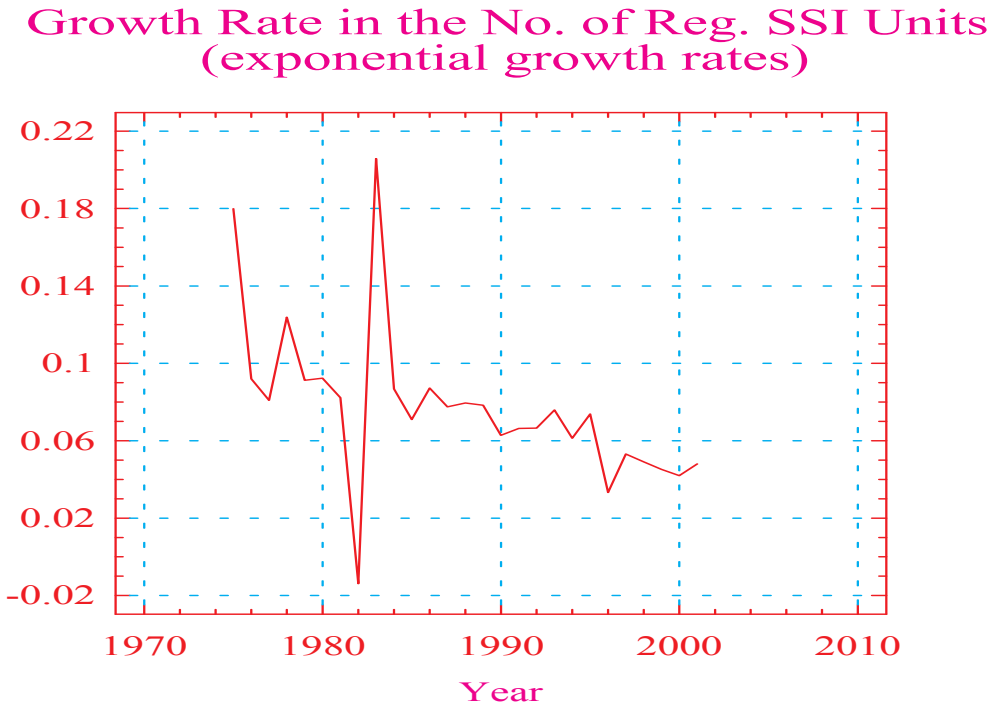

Growth Rate in the No. of Reg. SSI Units
(exponential growth rates)
0.22
0.18
0.14
0.1
0.06
0.02
-0.02
1970
1980
1990
2000
2010
Year

Fig.10

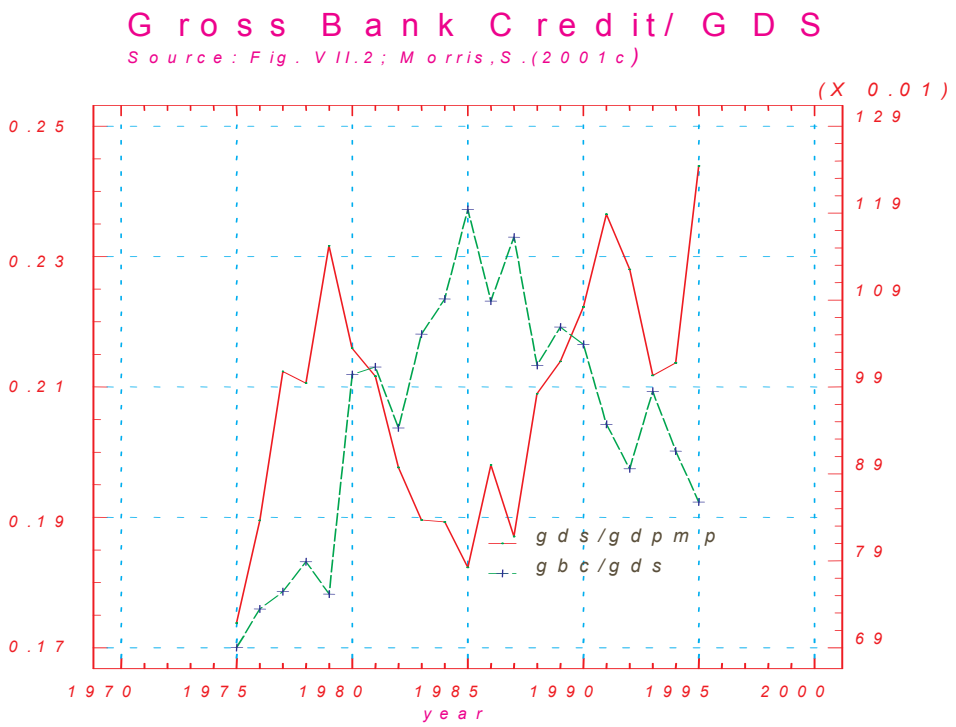

G r o s s B a n k C r e d i t / G D S
S o u r c e : F i g . V II.2 ; M o r r is , S .(2 0 0 1 c)
(X 0 . 0 1)
0 . 2 5
0 . 2 3
0 . 2 1
0 . 1 9
0 . 1 7
1 2 9
1 1 9
1 0 9
9 9
8 9
7 9
6 9
g d s /g d p m p
g b c /g d s
1 9 7 0
1 9 7 5
1 9 8 0
1 9 8 5
1 9 9 0
1 9 9 5
2 0 0 0
y e a r

Fig.11

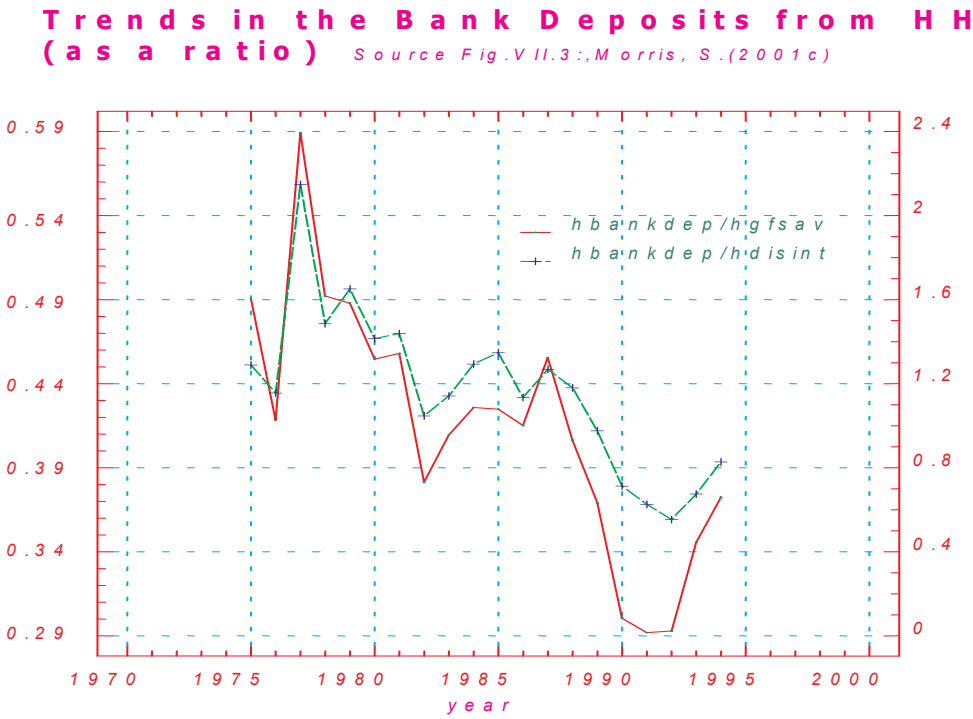
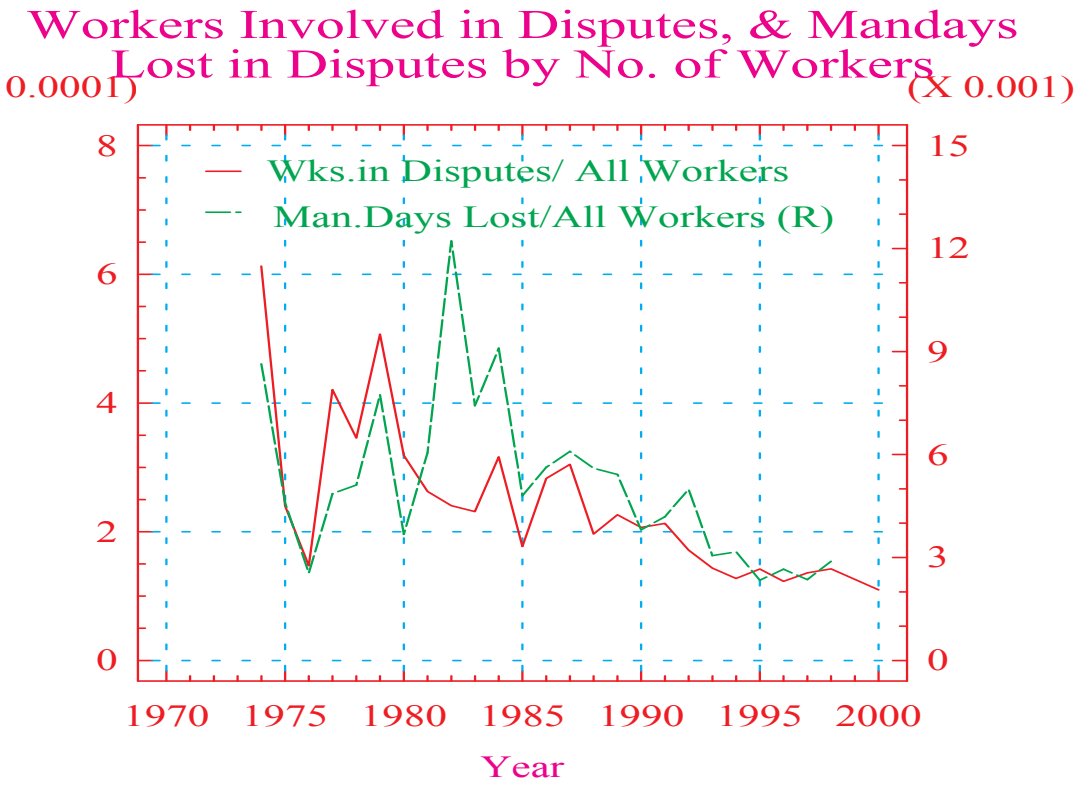

Trends in the Bank Deposits from HH
(as a ratio) Source Fig.VII.3:,Morris, S.(2001c)
0.59
0.54
0.49
0.44
0.39
0.34
0.29
2.4
2
1.6
1.2
0.8
0.4
0
hbankdep/hgfsav
hbankdep/hdisint
1970
1975
1980
1985
1990
1995
2000
year

Fig.12


Workers Involved in Disputes, & Mandays Lost in Disputes by No. of Workers
0.0001)
(X 0.001)
8
6
4
2
0
15
12
9
6
3
0
Wks.in Disputes/ All Workers
Man.Days Lost/All Workers (R)
1970
1975
1980
1985
1990
1995
2000
Year

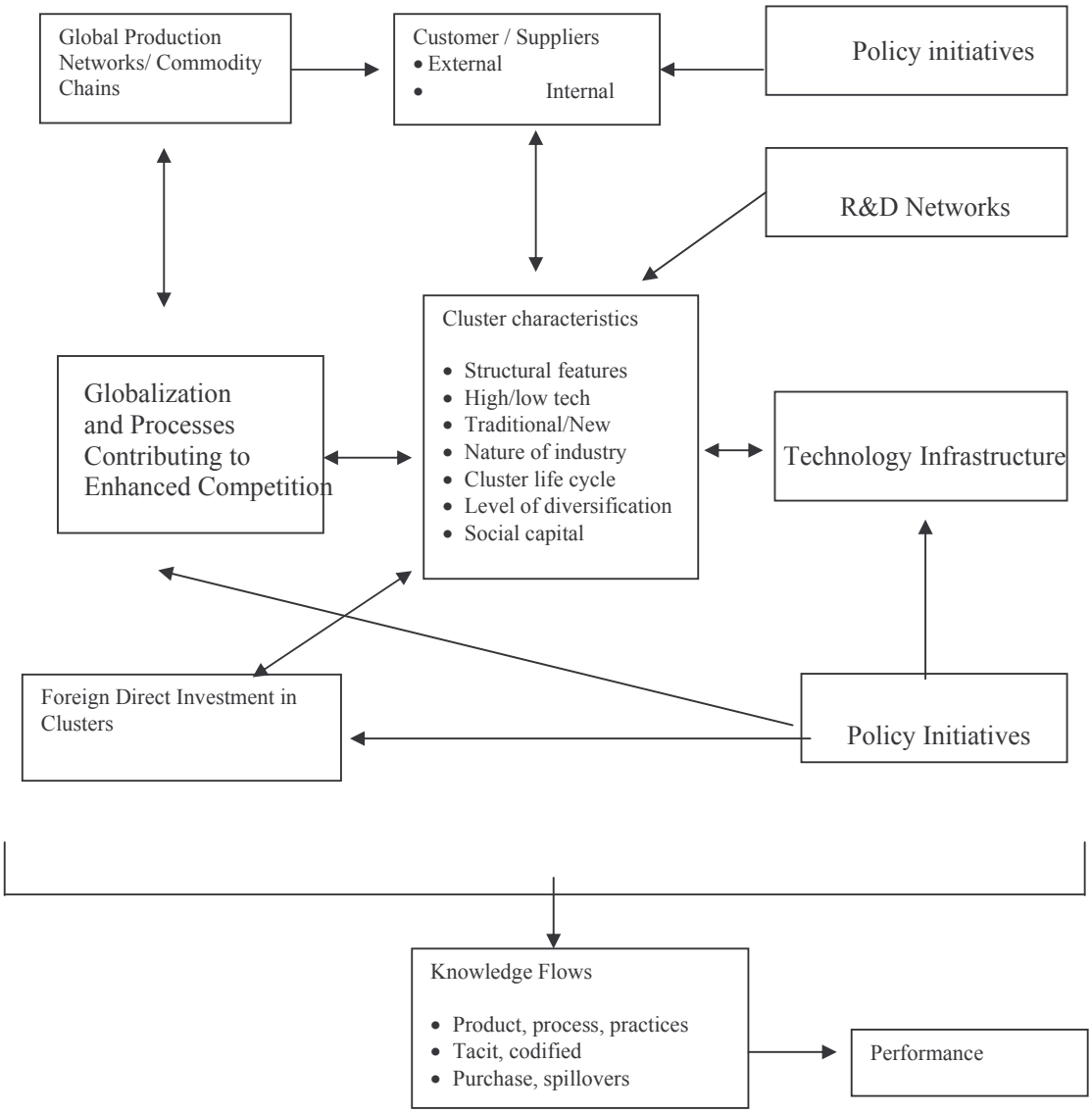


Figure 13: Cluster Characteristics, Linkages, Policies and Knowledge